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STEEL

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Volume 91 Number 3

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION • PROCESSING • DISTRIBUTION • USE

The Week in Perspective

STEEL is an unhappy prisoner marching in lockstep. Pocketed behind the automobile and building industries, the railroads and oil, gas and water construction, it chafes at their slow progress but must fall in with their gait. And crowding steel's heels are the iron ore, coke, lake shipping and other supply industries. All are impatient to break ranks and forge ahead, but that economic policeman —the law of supply and demand—is maintaining discipline and regulating the pace.

Standard of Living Down but Not Out

This pace, steel is confident, must be quickened shortly. Back to the level of the 90's steel making may have receded, but the American standard of living is irrepressible and like a buoyant object seeks its level once it escapes artificial restraints (p. 11). Not alone on the basis of 1929 is current per capita output of steel adjudged a scant third of normal; for three decades this standard has been on an ascending scale; virile enough to survive five depressions, it will weather the sixth.

Comforts That Will Not Be Surrendered

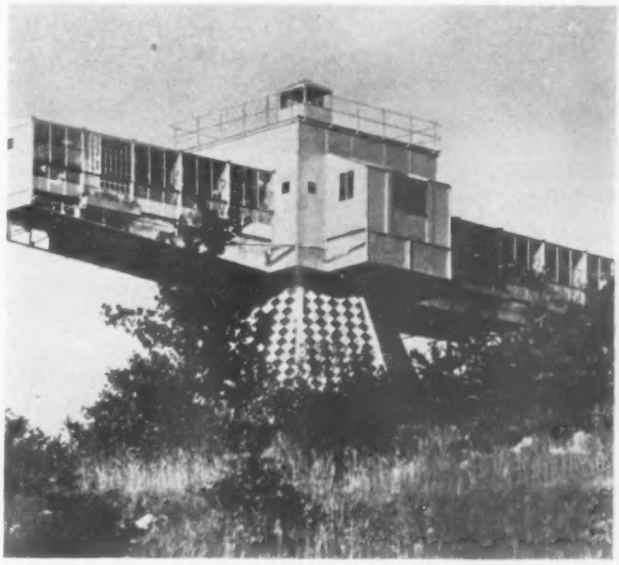
It is easy to make a convincing showing that the creature comforts developed in the twentieth century will not be permitted to lapse. Some 20,000,000 homes wired for electricity, 25,000,000 motor cars registered, 16,000,000 tons of shipping, 4,000,000 miles of highways, 249,000 miles of railroads, 111,000 miles of pipelines, 20,000,000 telephones, 12,500,000 radio sets—these necessities externalize a demand for steel (p. 12) for maintenance, replacement and extension that may be temporarily pent up but not permanently extinguished.

Politics Alloys European Steel Situation

Steel in Europe also has been hobbled, but more by political than strictly economic factors. Liquidation of political debts, removal of artificial trade restrictions, an advance in international amity—this is the price of routing distrust and reviving buying power, a price Europe now appears disposed to pay (p. 14). Scanning second quarter events abroad discloses the same drying up of production as in America, and an equally profitless price structure. . . . As a gesture toward this amity, European steelmakers are reported (p. 71) preparing to renew their entente. This week's cable from London is reassuring for the British industry: June pig iron and steel ingot production turned up as imports of iron and steel declined.

Taxes Nip Three-Quarters of Profit in Ore

The American industry, however, does not enjoy complete immunity from political encumbrances. At the very base of the iron and steel pyramid is iron ore, yet in 1930 the Lake Superior iron mining industry paid taxes—mostly local—equal to 75 per cent of its real net income from ore (p. 28). Per capita expenditures of one city of 2000 on an ore range were $370; in a similar size off-range city only



Wide World Photo

Steel and glass form this revolving solarium at Aix-Les-Bains, France. Mounted on a turntable, it revolves to give patients full sun all day

$16.35. . . . For operating 196,000 and 339,000 man-hours respectively without a lost-time accident (p. 15), an underground and an open-pit mine in the Lake Superior district have been awarded safety trophies.

A 2-Billion Adjournment, but Worth It

To the tune of $2,000,000,000 congress sings its swan song, but the burden on the country will not be commensurate with this outlay for relief inasmuch as congress adjourns, fulfilling one specification for recovery of business, and some hundreds of millions will be poured into self-liquidating structures (p. 13). Of the latter, the Golden Gate bridge, requiring 100,000 tons of structurals, is typical. . . . Due more to a rebound from the extreme depression following the July 4 holiday than to any sentimental reason, steelmaking operations have improved (p. 51), and there is hope that 12 per cent will prove the extreme bottom.

Auto Strategy Boards Plan for 1933

Regarding 1932 as water over the dam, automobile engineers are preparing for 1933. General Motors has decided to push Oldsmobile as its style leader next year (p. 19), and in other General Motors models radical body changes also are in prospect. . . . Ford, still easing a little in production, is forging front axles for its new line in an 1800-ton press (p. 25), both spindle bearing supports being formed with a single stroke of the ram, 2½ minutes being required. Following heat treatment, axles are pickled in a continuous conveyor type pickling machine installed in the line of production.

Where 5 Tons Is Big Business

A record for its kind is claimed for an order for over 3000 chrome-nickel cooking utensils for a New York hospital (p. 32), requiring 5 tons of this special steel, No. 12 and 18 gage. . . . Also a record is a 6½-ton chandelier, chiefly of steel sheets, for a Rockefeller Center theater in New York (p. 34). So large is it that a ventilating system will carry off the heat from 400 lamps; within the fixture there will be a stairway for workmen. . . . Two No. 24 gage sheets, with ¾-inch of composition fiber between, will be used to back porcelain enameled steel shingles (p. 32) being used in constructing a residence at Cleveland. These shingles supplant larger panels of an "enameled" house.

Signposts of Progress in Engineering

An automatic reel guide machine for threading and coiling cold-rolled strip under tension (p. 32) receives the strip as it emerges from the mill bed, threads it into an entry slot on the reel, and coils it, at the same time preventing curling and bending. . . . An eastern welding contractors' association proposes (p. 30) certifying competent welders. . . . Investigations reveal that silico-manganese alloys (p. 34) most quickly and thoroughly deoxidize steel to eliminate nonmetallic inclusions and produce cleaner steel. . . . A new high quality nickel (p. 29) exhibiting improved spinning qualities has been developed. . . . Nickel-clad steel plates are being rolled (p. 38) from No. 12 gage to extra heavy weights and as large as 96 x 330 inches. . . . An improved lining for steel furnaces, using magnesite without iron oxide or slag, is announced (p. 41) by the bureau of standards.

The VOICE of INDUSTRY

Communications appearing here do not necessarily reflect the opinion of STEEL *or of its editors.*

To the Editor:

When will the depression be over?

When it is over, who will know it and how can we tell? Presumably we will make a guess, but no one will ever be definitely able to announce to the world that the depression is over.

You will always find people and firms who say that business is terrible, while others declare that business is good. At no one time will everybody be satisfied with the results of his own endeavors. Satisfaction is comparative. What satisfies one man will never satisfy another.

The wise businesses and individuals have been planning, correcting costly mistakes, cleaning house, reorganizing, cutting unnecessary waste, and getting re-established on an efficient basis. Depression may be over already for such organizations, but they don't know it. There are some other organizations for whom the depression never will be over, but that is the fault of the businesses and not the depression.

My theory is based on the fact that we get nothing for nothing. If we want to progress in life everyone of us must use that complicated but ingenious thinking machinery in our brains. Our company looks to its men in the field to plan and build for the future by conscientious hard work to get business from those who are already over the depression or well on their way, and who, therefore, are making progress because they have realized the fallacy of thinking that the world will never recover from its present illnesses.

GEORGE J. KADEL, president,
Elliot Service Co., New York.

To the Editor:

We have received a letter from a manufacturer for whom we are distributors informing us that he has received our inquiry for prices for equipment for the United States government and also has received a similar inquiry direct from the government. The manufacturer has quoted direct and at a price which does not permit of any commission for us.

This is not unusual, but we would like to know why the United States government is entitled to any better prices than other buyers.

"MANUFACTURERS AGENT,"
Ohio.

American Standards Demand Higher Steel Output

NORMAL per capita steel requirements in the United States this year, as shown in STEEL, July 4, page 12, are three and one-half times as large as estimated output for the year. It must not be inferred that these needs are predicated upon a maintenance of the living standard attained only in recent prosperous times; for as pointed out in the article, they represent actual, established requirements in this country, built up since 1899.

In the 30 years, 1900-1929, at least five depressions in per capita steel production occurred; in each instance recovery followed within a year, and the normal upward trend was resumed. Output in the eight years preceding 1930 varied only slightly from the known, normal requirements, whereas since 1929 it has been farther below normal than ever before in history. The output this year, 295 pounds per capita, goes back beyond 1900, in which year it was 300 pounds.

A picture of American standards as they existed in 1900, contrasted with those today, reveals how far steel output is out of line with today's necessities. In 1900 the population of this country was only 75,990,000; today it is 124,822,000. To be sure, population by itself does not determine steel requirements; but go a step further and note the population's resources.

National wealth today is $361,800,000,000, compared with $88,517,000,000 in 1900; savings bank depositors have increased from 6,107,000 to 14,256,000; and their deposits from $2,449,547,885 to $11,234,611,000. The diffusion of wealth in the United States has been the main cause for the continued expansion in normal steel requirements.

More Cars Scrapped Than Made

This progress is reflected in every steel-consuming group. Motor cars, for instance, are being scrapped in this country today at a rate of 2,000,000 annually, whereas total car registration did not pass the 2,000,000 mark until 1915. Motor car output this year, estimated at 1,500,000, does not replace the number going out of service. Registered cars increased from 8000 in 1900 to 25,814,000 in 1932. It is inconceivable that a convenience and necessity so valuable in all respects will be permitted to lapse; rather, it is more reasonable to suppose that steel output will again be built up to meet these needs, and that this is true also of all other modern facilities of life.

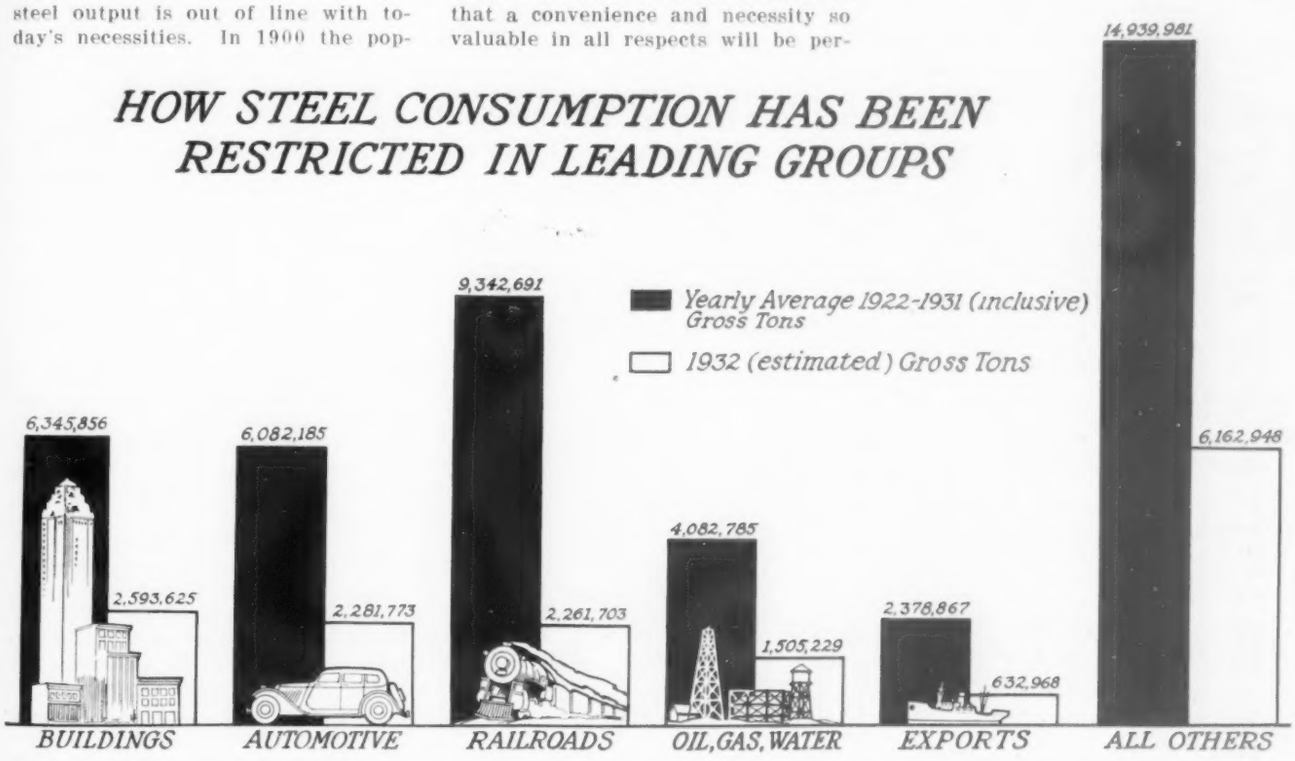
Further comparisons illustrate how requirements have multiplied. The year 1904 marked the turning point in American road construction to accommodate motor cars, then demonstrating their success. The total mileage of surfaced roads, outside of cities, in that year was 153,646.

These stronger types brought in new demands for steel, to be used in their construction, but more especially they led to development of a vast amount of steel equipment. By 1931 there were 730,000 miles of highways surfaced. Expenditures for rural road surfacing last year were $1,700,000,000; for street construction and maintenance, $500,000,000.

In recent years this country has been surfacing its highways at the annual rate of more than 50,000 miles. At this rate the mileage will be doubled in 14 years—and there still will remain 1,540,000 miles of roads now-existing to be surfaced.

Road improvement and mechanization provided the first solid wave of farm "relief." Between 1920 and 1929, census reports show the number of tractors on farms increased from 246,083 to 852,989. In 1930

HOW STEEL CONSUMPTION HAS BEEN RESTRICTED IN LEADING GROUPS



RAILROADS, representing the largest single industry in the United States, have consumed more steel in the past ten years than any other leading group, accounting for an annual average of 9,342,691 gross tons; compared with 6,345,856 tons for buildings, and 6,082,185 tons for motorcars. Railroads took more steel in 1922, 1923 and 1924 than buildings and motorcars combined, buying heavily to rehabilitate themselves following the 1921 depression. Since 1929 railroad demand has fallen more precipitously than the others, indicating probably a revival of railroad purchasing on a new upswing of business. STEEL's official distribution figures for finished steel have been related to total steel output, the conversion loss from raw to finished steel being charged against each group, proportionately

harvesting machinery, mainly steel, was produced to the value of $62,-145,000; plows, $37,830,000; planting and fertilizing machinery, $26,-000,000; cultivators and weeders, $20,000,000. Farm mechanization is far from completion.

The increase in oil pipe lines in this country—from a beginning of 25 miles in 1874—has called for constantly growing tonnages of steel, though it has subtracted in some measure from that required by railroads. Oil lines, one of their biggest competitors, total more than 111,680 miles.

As recent as 1927 a pipe line for conveyance of natural gas more than 250 miles was considered an engineering phenomenon; yet in 1931 a line 900 miles long was laid, taking 188,000 tons of steel.

Mounting demand for long-distance pipe lines was asserting itself in 1930 and 1931, long after purchases by some other important consumers were sharply restricted, and in all probability it will be revived when the financing of certain large projects is feasible; in other words, when confidence is restored. These projects, now latent, appeared to require 15,-000,000 to 20,000,000 tons of steel within three to five years.

Skyscrapers in every American city that dwarf the tallest buildings of 1900; bridges that make those of 1900 seem puny by comparison—these are the more obvious symbols of American progress today. Buildings alone in 1929 accounted for approximately 8,295,000 tons of steel, an amount exceeding total steel production in 1889, and within 1,285,-000 tons of entire output in 1900.

Building enterprise seemed to relinquish its grip more reluctantly in 1930 and 1931 than did the other two great consuming groups, automotive and railroads. Even this year it has been one of the mainstays of steel demand—its persistence in the face of adverse conditions being one of the surest signs of the irrepressible urge for improvement.

True, a large share of recent structural awards have been derived from public work, especially federal, but fabricators have been kept busy figuring innumerable small jobs; the market has not become stagnant.

With all the work done in recent years, slums have not disappeared; there is now more than ever a demand for good, economical small homes, possibly of the steel type. Commercial buildings which 20 years ago were a credit to city streets now stand as a disgrace to them; old, poorly-designed industrial buildings must be replaced.

In the ten years, 1922-1931, building construction accounted for an annual average of 6,345,846 tons of steel; motor cars, 6,082,185 tons; and railroads, 9,342,691. On this basis, railroads still appear to be by far the largest users. In 1922, when business was crawling out of a depression, the railroads under the necessity for rehabilitation absorbed more steel than buildings and motor cars combined. This was repeated in 1923 and again in 1924. In 1931, however, the railroads' share of steel distribution was less than that for either buildings or motor cars.

Conversion Loss Prorated

These tonnages are determined by relating STEEL's official statistics on finished steel distribution to total steel output, loss for conversion from raw to finished steel being properly chargeable to the various consuming groups in an analysis to show the disposal of steel, and comparative importance of each group.

In view of the severe slump in railroad purchases in the past two years, and the low state of railroad equipment, is it too much to expect that they will come back strong as they did following 1921? Railroads represent the largest single industry in the United States; their condition is never static; wear and tear sooner or later must be repaired; outworn equipment replaced.

Recent rail orders have been negligible; in the first six months of 1932 only 359 cars were purchased. At this rate purchases in 1932 will be less than 1 per cent of the annual average in the preceding ten years. Freight cars exhibit an almost human trait, in that they go to ruin much faster when idle than when they are employed.

Railroad mileage in the United States increased from 193,346 in 1900 to 250,000 in 1930; the number of freight cars from 1,365,531 to 2,322,267; their capacity, from 29.4 tons to 46.6. The number of loco-

Progress in America; Can It Be Stopped?

	1900	Today*
Population	75,995,000	124,822,000
National wealth	$88,517,307,000	$361,800,000,000
Saving's bank depositors, number	6,107,083	14,256,834
Saving's bank deposits, total	$ 2,449,547,885	$ 11,234,611,000
Rural roads, miles	2,000,000	3,009,066
Rural roads, surfaced, miles	140,000	730,000
Rural roads, high type surface, miles	10	145,000
Automobiles, passenger and trucks, in use, number	8,000	25,814,103
Automobiles, passenger, in use, number	8,000	22,347,800
Automobiles, trucks, in use, number	0	3,466,303
Automobile trailers in use, number	0	349,930
Tractors on farms, number	0	853,000
Motorbuses operating, number	0	95,400
Railroads, miles of main line	193,346	249,052
Railroad freight cars, number	1,365,531	2,322,267
Railroad freight cars, ave. capacity, tons	29.4	46.6
Railroad passenger cars, number	34,713	53,584
Railroad locomotives, number	37,663	60,189
Ships, American Merchant Marine, number	23,333	25,471
Ships, American Merchant Marine, tons	5,164,839	15,908,256
Airplanes licensed, number	0	8,000
Airports, recognized, number	0	1,782
Petroleum pipe lines, miles	1,000	111,680
Building, highest, stories	20	102
Building, highest, feet	286	1,248
Bridge, suspension, longest span, feet	1,596	3,500
Bridge, cantilever, longest span, feet	1,710	1,800
Bridge, steel arch, longest span, feet	840	1,650
Bridge, steel truss, longest span, feet	546	1,008
Subways in New York, miles	0	404
Moving picture theaters	0	22,000
Golf clubs, private, number	**	5,856
Homes using electricity	**	20,438,774
Vacuum cleaners, number	0	9,086,053
Electric irons, number	0	20,000,500
Electric washing machines, number	0	7,185,000
Electric percolators, number	0	6,000,000
Electric refrigerators, number	0	3,750,000
Radio sets	0	12,563,737
Telephones in use	1,355,900	20,068,000

*From latest available reports. **Information not available.

motives increased from 37,663 to 60,189. At the same time their design has been greatly improved, tractive power being increased, fuel consumption reduced.

These are a few of the main points relating to railroads, building, automotive and pipe-line steel requirements today. They represent approximately 60 per cent of total steel distribution. But beyond them are vast markets for steel products contributing to established American standards of living. For example, a glance at one lesser, but important, consuming group reveals the following: 20,438,774 homes wired for electricity; 20,000,000 telephones in use; radio sets to the number of 12,563,000; vacuum cleaners, 9,086,000; electric irons, 20,000,000; electric washing machines, 7,185,000; electric percolators, 6,000,000; electric refrigerators, 3,750,000.

Luxuries Made Necessities

Many of these new demands have been developed from practically the zero mark in 1900. Nor must it be supposed that this was due to far greater increases in population in the earlier years than we have today. Population increased 21 per cent from 1901 to 1910; and 16.1 per cent from 1921 to 1930. Though the rate of gain has slowed up to some extent, on the other hand the number of marriages in this country increased from 685,284 in 1900 to 1,201,000 in 1927, the significance being that a larger number of persons are setting up housekeeping, calling for home facilities.

It scarcely needs statistical elaboration to confirm the general knowledge that, barring the period of this depression, creature comforts have risen to a higher degree than ever before in the history of the country; more families have the necessities for living; so-called luxuries of a few years ago have become necessities, are found in more homes.

The whole course of human progress, insofar as it bears on demand for steel products, has been upward; a beneficent cycle has been established, providing employment, to supply new wants. Can any one believe that America has lost sight of these advantages? That we have surrendered most, or all, of the benefits to be derived from the industry necessary to maintain our established place, and to move on a higher plane?

The anchor to which the steel industry can tie in the present state of affairs is this—consumption now is proceeding at a much faster rate than production. Fabricated steel is being used in accordance with the modern era's requirements, though per capita raw steel output, as previously noted has reverted to that of 1900.

Some evidence of the fact that out-

(*Please turn to Page* 58)

The Business Week In Washington

LAST minute efforts to insert in the unemployment relief bill an amendment prohibiting the use of foreign steel in projects financed by loans from the Reconstruction Finance Corp. failed. When the President informed congress that he would accept an amendment providing for publicity on all future loans by the corporation, the house and senate conferees reached complete agreement and the measure was adopted.

A number of representatives of the steel industry, noting the omission of any barrier to the use of foreign materials, made strenuous efforts to correct the situation in the final hours of this session of congress. Senator David Reed, of Pennsylvania, offered an amendment, which failed. An attempt to obtain an amendment by proclamation also proved fruitless. The hope of the industry is that public sentiment will be sufficiently aroused to insure the business for domestic producers.

The relief bill appropriates $1,800,000,000 to states, municipalities and other public agencies for the construction of self-liquidating projects. The Golden Gate bridge, requiring 100,000 tons of structurals, is typical. For federal works, $322,000,000 is appropriated.

□ □ □

Customs bureau has ruled that it will stand on its former decision that reinforcing concrete bars imported on and after July 14 must be marked with the country of origin. At hearings held last week, importers charged that the original ruling was instigated by domestic producers in an effort to exclude all imports.

□ □ □

A quickening of activity of the dumping unit of the customs bureau of treasury is likely to result from the proposal of the National Association of Flat Rolled Steel Manufacturers, Cleveland, for an embargo upon dumping of foreign steel products.

Only congress can declare an embargo on imports, it is pointed out. The proposal of the Flat Rolled Steel association is for an embargo on dumping. The current tariff law provides for increased duties, sufficient to compensate for dumping, in most instances.

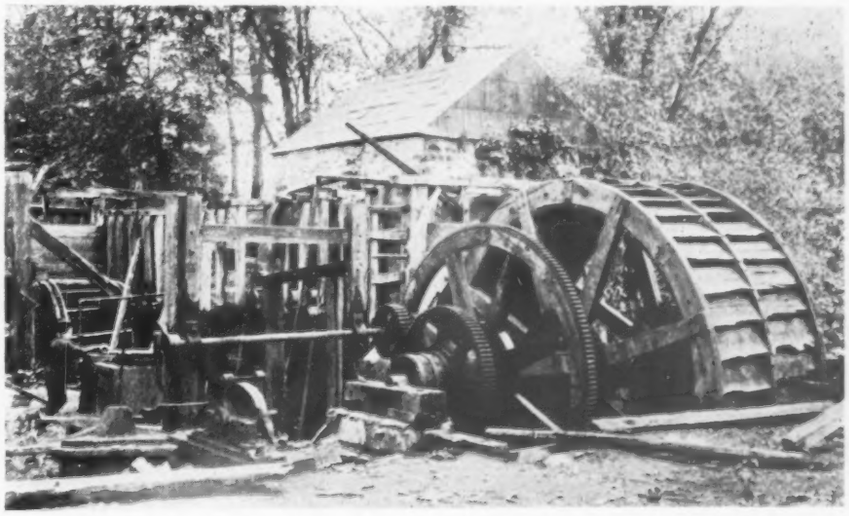
The dumping unit of the customs bureau already is proceeding with an investigation, following complaint filed by the American Iron and Steel institute, which named specific products. According to the treasury, if the Flat Rolled association desires a dumping probe specific products must be cited.

□ □ □

Bureau of standards has completed a study on the effect of protective coatings on the endurance properties of steel.

□ □ □

"The Making of an Allsteel Automobile Body" is the title of 2-reel silent educational movie ready for distribution by the bureau of mines.



THE WHEEL HAS STOPPED BUT ITS INFLUENCE SURVIVES: Birthplace of Joseph T. Ryerson & Son Inc., national iron and steel warehouse chain. To this spot in New Jersey in 1708 came Joris Ryerson, and to smelt the local ore a forge was erected—first association of the Ryerson name with the iron and steel industry. Furnaces and forges in this vicinity supplied small cannon and round shot and the great chain which was thrown across the Hudson river during the Revolutionary war, and doubtless the power generated by this wheel was a silent reinforcement of Washington. Four generations later Joseph Ryerson went to Chicago, there founding in November, 1842, an organization which shortly will celebrate its 90th birthday

Need Sane Economic Outlook For European Steel Recovery

BY VINCENT DELPORT
European Manager, STEEL

SINCE our last review of European trade conditions, the general situation has not improved, and in some respects it has further deteriorated. One of the principal factors that has been grafted on the original causes of the world depression, and which intensifies their effect, is the policy of artificial trade restrictions set up by individual countries in an endeavor to protect their immediate national interests.

These restrictions are in the form of increased tariff rates, import quotas, and restrictions on transfers of currency. The original causes of the depression have not been removed, and some of the artificial trade restrictions have been amplified, with the result that international trade is more and more drying up.

Steel production in Europe is diminishing. An accompanying table shows the combined output of steel of Great Britain, France, Germany, Belgium, Luxemburg and the Saar for the first five months of the year. Another table shows the drop in imports and exports of iron and steel for Great Britain in the period January to May.

The figures showing the drop in values are of particular interest. Where such figures are available for continental countries, they tell the same story. The proportionately greater decrease in the value of products shows the influence of the low world price levels.

Exports Sold at Loss

Continental billets are offered at £1 19s ($9.45); a year ago they were sold at £3 2s ($15). Quarter-inch basic bessemer plates can be obtained today at the price quoted for foundry pig iron in January, 1931. It may be said that practically every ton of continental steel sold in export markets is sold at a loss.

Actually, for many works in Belgium, France and Germany, pig iron and steel have become by-products, while profits are being made by the works selling electricity and gas to municipalities or slag to builders and road contractors. Such absurdities are accompanied, of course, by a serious increase of unemployment, and they are not restricted to the iron and steel industries.

There are some encouraging features that relieve the general gloom. Like France in 1926, Great Britain has put her house in order, and the underlying conditions in that country are more healthy than they have been for some years past and than they are in most continental nations.

Belgium, Luxemburg and Holland are concerting to reduce tariffs between themselves, and the Scandinavian countries are preparing to take similar action. The steps taken by the United States to solve its own problems are followed in Europe with hopeful and sympathetic interest.

It is realized, on the other hand, that no one country can hope to become prosperous again while the rest of the world is crippled. Therefore, all eyes are turned toward Lausanne, where, at the time of writing, an international conference of statesmen and experts is trying to solve the economic problems with which the world is confronted. Later, a conference with a still larger scope is to be held with American participation.

It is felt that a crucial point has been reached. If the present opportunity is not seized to relieve European countries of political debts, settle differences and remove trade restrictions, the present downward trend must continue, with all its dire consequences: A further general reduction of the standard of living, further hoarding on the one hand, and contraction of purchasing power on the other, and an increase of unemployment, which eventually will result in a revolt on the part of the millions who can neither be given a means of livelihood nor financial assistance.

The danger of this position is that the various unfavorable factors react on each other with an accelerating effect. The economic structure of the world is menaced by an avalanche which gains momentum as it rolls blindly downward toward a possible precipice.

On the other hand, a return to common sense on the part of nations would bring about a cure for the world's troubles. There would, of course, be a period of convalescence, but immediate relief would be forthcoming if the major problems were settled by mutual concessions and, when justified, by certain compensations that can be looked for in a practical domain and not in the realm of fallacies.

Nationalism a Handicap

One of the great difficulties of the situation is that in every country there are different currents of opinion and different interests involved, which counteract each other. The difficulty is increased by exacerbated nationalist tendencies in one quarter or another.

Those who represent the nations at an international conference are not, therefore, in a position to make the right decisions, on which most of them would agree, because they fear that those decisions would not be accepted by their respective parliaments. The psychological factor in this vast problem of world depression is of considerable import.

It is, therefore, of primary importance that every individual capable of thought, whichever country he belongs to, should take a sane view of the position and prepare his mind for the

Paints European Picture

THE accompanying survey of business conditions in England and the Continent is by the European manager of STEEL. *His information from leading industrial centers of Europe is convincing that the immediate future of the steel industry is inextricably interlinked with the solution of economic problems, some of them international.*

European Steel Production Falling Behind Fast

	Metric Tons January-May			
	1932	1931	1930	1929
Great Britain	1,644,200	2,256,740	3,821,785	4,113,175
France	2,298,000	3,510,000	4,062,000	4,020,000
Germany	2,426,975	3,831,355	6,720,135	6,929,865
Belgium	1,234,100	1,239,950	1,607,540	1,690,230
Luxemburg	777,000	837,110	1,043,735	1,097,045
Saar	612,035	726,000	895,000	896,630
Total	8,992,310	12,401,155	18,150,195	18,746,945

acceptance of certain inevitable consequences of the present tangle.

No solution will be found that will satisfy everyone. A give-and-take attitude must be adopted, and the mind must be trained to see problems from the viewpiont of others.

The sanctity of treaties and contracts must be preserved; but it must also be realized that conditions vary and that certain dispositions that were true or possible at one time may now have become impossible because of modifying circumstances and also because experience has brought to light errors of the past. Therefore, the necessity of revising treaties and contracts by mutual consent must be recognized.

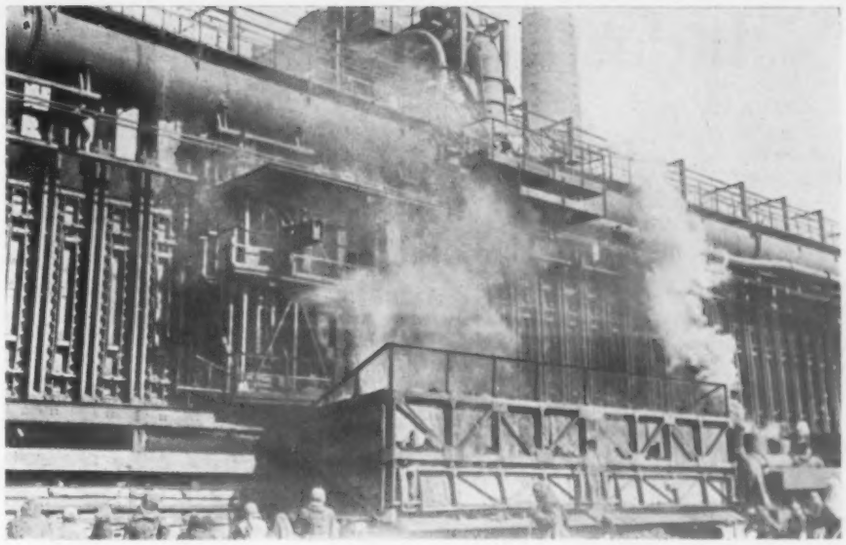
One must also be convinced that there are a few fundamental economic laws that cannot be tampered with with impunity. In last analysis it can be said that the primary cause of the present crisis is the attempt that has been made in good faith, but with lack of foresight, to establish certain conditions which tended to counteract the cast-iron law of supply and demand.

Overproduction Chief Difficulty

To name but a few among the most important factors referred to we would cite: The exigencies of unwieldy reparations and war debt payments, coupled with restriction of imports; the tremendous impulse given to production by mechanical and mass production methods without the corresponding capacity eventually to absorb that production or to solve the correlated labor problem; the exaggerated granting of credit facilities that do give a considerable impulse to the demand for goods, but this demand cannot be maintained, and the means of production remain and become a burden; excessive speculation. All these factors have had the effect of interfering with natural economic laws and have contributed to the crisis.

In those directions should be found the remedies for the ills of the world. At this stage, common sense and a broad outlook will do more in a lasting sense than ingenuity. Attempts to apply artificial measures, such as manipulating currencies or forcing prices upward, will destroy their own ends. Were it feasible suddenly to increase the price of raw materials, such an action would only be beneficial if the price of the manufactured product to the ultimate consumer, whose purchasing power is severely curtailed, were not substantially increased.

It is only by removing artificial conditions that a normal flow of trade from one country to another will be re-established. The first effect of a sane settlement will be to revive confidence, thus unlocking a considerable amount of hoarded reserves and recreating a demand for goods that are badly needed, either for immediate requirements or for replenishing depleted stocks. Gradually the demand will increase, bringing into play the natural law which will cause prices to rise and gold to flow. Thus the price problem and the gold and currency questions will find their own solution.



COKE FOR SOVIET FURNACES: A new battery of by-product ovens at the Magnitogorsk steelworks in the Ural mountains, where the second blast furnace has recently been completed. Photo by Soyuzphoto to Economic Review of Soviet Union

Safety Trophies Awarded Lake Superior Iron Mines

A Sentinels of Safety trophy has been awarded to the Harold iron ore mine at Carson Lake, Minn, operated by the Hanna Ore Mining Co., for the best safety record at underground iron mines in 1931. The mine operated 196,316 man-hours without a lost-time accident. A similar trophy has been awarded the Mahoning mine, Hibbing, Minn., operated by the Mahoning Ore & Steel Co., for the best record at open pit mines. This mine operated 339,722 man-hours, without a lost-time accident.

The contest is conducted by the United States bureau of mines with coal, metal and nonmetal mines and quarries participating. A bronze trophy provided by *The Explosive Engineer* is awarded for the best record in each class.

Inspecting Canadian Mills

Montreal, Que.—Concluding the conference, which got under way July 4, representatives of the British and Canadian steel industries are inspecting steel mills in the Toronto and Hamilton districts. A program adopted at the conference will be made available to the imperial economic conference at Ottawa.

Is Shipping Cotton Ties

Birmingham, Ala.—Cotton ties are being shipped from mills of Tennessee Coal, Iron & Railroad Co. at Fairfield to warehouses in the cotton-growing section to meet demands expected 60 to 90 days hence. Production is equal to last year.

British Imports and Exports of Iron and Steel

	January-May			
	IMPORTS		EXPORTS	
	Tons	Value	Tons	Value
1932	841,414	£4,924,023	805,278	£12,005,975
1931	1,030,443	7,485,561	836,596	13,432,439
1930	1,318,535	10,780,814	1,546,571	24,555,749
1929	1,105,597	9,882,148	1,933,982	29,300,669

Hoist Orders Up 20 Per Cent

New York—Members of the Electric Hoist Manufacturers' association report the number of hoists ordered during June increased 20 per cent as compared with the previous month, and the value of such orders increased 21.204 per cent. June shipments exceeded those of May by 7.405 per cent.

Industrial Men in the Day's News

Earl C. Smith, Chief Metallurgist, Republic Steel Corp.

NOW he will supervise for all Republic the metallurgical activity he undertook for Central Steel Co. in 1919.

AN intensive training at Ohio State and Columbia Universities fits him for his wider responsibilities.

DURING the war he was identified with aircraft production. He belongs to the more important technical bodies.

EARL C. SMITH, assistant manager of the Republic Steel Corp.'s Central Alloy division, has been appointed chief metallurgist for the Republic corporation, with headquarters at Youngstown, O. In his new post he will have the widest scope yet afforded him since his connection with the Republic corporation and its predecessors, dating back to 1919.

Born at New Brighton, Pa., Mr. Smith attended Ohio State university, Columbus, graduating in 1913. He spent another year in special university work before becoming connected with the Illinois Steel Co. at Gary, Ind. A year later he engaged in further special training at Columbia university, New York, returning to Ohio State as an instructor.

During the World war he was connected with the aircraft production office in Pittsburgh. In 1919 he went with the Central Steel Co., Massillon, O., as chief inspector. Successively, he became mill metallurgist and chief metallurgist, and when the Republic corporation was formed, assistant district manager of the Central Alloy division.

Mr. Smith is a member of the American Iron and Steel institute, American Institute of Mining and Metallurgical Engineers, American Society for Testing Materials, American Society for Steel Treating, Amercan Chemical society, British Iron and Steel institute, and British Institute of Metals. At the spring meeting of the American Iron and Steel institute, New York, May 19, Mr. Smith gave a paper, "Stainless Steel Production—Equipment and Method of Manufacture."

WALTER E. MEUB, formerly secretary-treasurer of the Youngstown Sheet & Tube Co., has been elected vice president in charge of the company's finances. He succeeds William J. Morris, recently chosen president of the company's St. Louis distributing subsidiary, the Continental Supply Co. Mr. Meub is succeeded as secretary by J. C. Argetsinger, general counsel of the company. Fred Tod, a large stockholder, becomes a director to succeed Mr. Meub on the board.

Mr. Meub, who has been with the Sheet & Tube company 23 years, was born in Warren, O., started at 17 with Erie railroad as freight handler, later was yardmaster. In 1909 he became clerk for the Sheet & Tube company, advancing through sales and auditing departments to become secretary to President James A. Campbell, in 1929 secretary of the company, and now vice president.

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Willis L. King, senior vice president, Jones & Laughlin Steel Corp., Pittsburgh, celebrated his sixty-third anniversary of active affiliation with the Jones & Laughlin company, July 12.

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William P. Witherow, former president at Dilworth-Porter & Co. Inc., Pittsburgh, and Witherow Steel Corp., Pittsburgh, has been named chairman of the 1932 Welfare Fund campaign, Pittsburgh. He succeeds Joseph Dilworth, who has headed the campaign during the past three years.

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I. Lamont Hughes, president, Carnegie Steel Co., Pittsburgh, and Charles Belsterling, vice president of the United States Steel Corp., New York, were guests July 14 at an outing of prominent railroad and steel officials held by the Pittsburgh Traffic club at the Pittsburgh Field club, Pittsburgh.

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William H. Shulte has resigned from the National Engineering Co., Chicago. Previously he was connected with the Arcade Mfg. Co., American Foundry Equipment Co., and S. Cheney & Son Co. He has served the American Foundrymen's association as superintendent in charge of installing exhibits at conventions.

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H. T. Herr Jr., formerly vice president of the J. S. McCormick Co., Pittsburgh, foundry equipment manufacturer, has been elected president of

the company, to succeed the late J. S. McCormick.

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Arthur Ross, Dominion Chain Co., Niagara Falls, Ont, has been elected a representative of the Manufacturers' association in the chamber of commerce of that city.

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Irving H. Jones, recently appointed manager of railroad sales for the Timken Steel & Tube Co., Canton, O., served in this capacity for ten years with the Central Alloy Steel Corp., and the past few years has been western sales manager for the Molybdenum Corp. of America. He has been active in the railway supply industry

Irving H. Jones

over 20 years, and is now president of the Allied Railway Supply association.

Exports Quicken German Tin Plate Industry

As in the United States, the tin plate industry in Germany is a more favorable situation than any other branch of the German metalworking industry, state reports from American consuls at Frankfort and Hamburg to the department of commerce. Exports have increased sharply, due largely to improved trade with Japan. In the first four months of 1932, German exports of tin plate have totaled 24,418 metric tons, compared with 13,827 tons in the similar period of 1931.

Belgian Shapes Lead Imports

Philadelphia—Imports received at this port from Belgium in the week ending July 9 included 599 tons of structural shapes, 18 tons of bars and 3 tons of bands.

Here and There In Industry

NORTON CO., Worcester, Mass., manufacturer of abrasives, has bought the entire stock of the Pike Mfg. Co., Pike, N. H. The Pike Norton Co. has been incorporated to carry on the business as a unit of the Norton Co., with main offices at Worcester and executive offices at Pike. Plants at Pike and Littleton, N. H., will be continued. Officers of the new corporation are: Herbert E. Smith, president; W. LaCoste Neilson, vice president; George N. Jeppson, treasurer; Clifford S. Anderson, secretary and clerk. These officers with Aldus C. Higgins form the board of directors. Pike Mfg. Co. was founded in 1823 on discovery of a natural abrasive rock suitable for sharpening scythes. Other natural sharpening stones were added to the line, from Arkansas and other localities. About 30 years ago India oilstones of Alundum electric furnace abrasive manufactured by the Norton Co. were added. A new marketing plan will be announced about Sept. 1, giving effect to advantages of the consolidation.

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General Alloys Co., Boston, has appointed the Cleveland Duplex Machinery Co., Penton building, Cleveland, its representative in the Cleveland district. G. J. Hawkey is head of the Duplex organization, which will handle service as well as sales.

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Magnetic Mfg. Co., Milwaukee, has appointed Lindrooth, Shubart & Co., Boston building, Denver, its representative in Denver territory. The new agency will handle the entire line of magnetic separators, clutches, conveyor rolls and other equipment. Engineering service will also be provided.

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Consolidated Steel Co. Ltd., Los Angeles, will take over the western sales personnel of the Foster Wheeler Corp., New York, and will handle all sales for the latter in California, Washington, Oregon, Nevada, Utah, Arizona and New Mexico. Manufacture of equipment for this territory will also be undertaken by the Los Angeles company.

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American Machine & Metals Inc., New York, P. B. Muniford president, announces Tolhurst Machine Works Inc., a subsidiary, has purchased Sweet & Doyle Foundry & Machine Co., Green Island, Troy, N. Y. The latter company for 30 years has specialized in general machine shop work, gray iron castings, machine molded castings, pattern work and experimental engineering development. Tolhurst Machine Works Inc. and Sweet & Doyle Foundry & Machine Co. will be under the supervision of Perry Holder, manager and vice president of the Tolhurst company. Alexander F. Zak will be in charge of operations. The combined companies will be located at Green Island. In addition to products of the latter company, the Tolhurst company will manufacture centrifugals for the textile, chemical, laundry and other industries.

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Steel Treating Materials Co., Milwaukee, has opened office and warehouse at 1321-1329 West Pierce street. The head of the concern is Ray Thiesenhusen, who resigned recently as treasurer and sales manager of the

J. H. Fitch Jr.
Recently appointed Detroit district sales manager, at 1118 Fisher building, for the Inland Steel Co., Chicago

Wesley Steel Treating Co., Milwaukee. For the past year he has been chairman of the Milwaukee chapter, American Society for Steel Treating.

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American Hydraulic Mfg. Co. has been organized at Duluth with $500,000 capital to take over the assets, patents and other property of the Magic City Specialty Co., Tulsa, Okla., manufacturer of pumps and oilfield specialties. R. V. Whiteside, Duluth, is president. The general offices for the present will be at Duluth and the manufacturing department will remain at Tulsa, in charge of Charles G. Boone.

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Tulsa Steel Co. Inc., Sand Springs, Okla., previously incorrectly reported as Tulsa Steel Mills Inc., placed its open-hearth furnace in operation the week of July 11. It has started rolling rail steel, reinforcing bars and bar mill angles and channels in addition to other products. L. W. Conroy is vice president and general manager.

Obituaries » » »

RAYMOND C. PENFIELD, 72, co-founder of the Hadfield-Penfield Steel Co., manufacturing war munitions at Bucyrus, Mansfield and Willoughby, O., and Chicago, died at New York, July 11. He suffered a nervous breakdown after the World war and never fully recovered. After the war the Hadfield-Penfield partnership was dissolved. Mr. Penfield became president of the American Clay Machinery Co., New York, returning to the company with which he had been identified prior to his venture in munitions. Four years ago he retired from the American company.

Mr. Penfield, a native of Willoughby, O., became first president of the Goodyear Tire & Rubber Co., Akron, O., in 1898. During his association with the American company he invented a system for mechanically handling bricks. Interment was at Willoughby, O.

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M. B. Muxen, 50, president of the Tokheim Oil Tank & Pump Co., Fort Wayne, Ind., and formerly a resident of Pittsburgh, died recently.

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William J. Lawrence, president and founder of the National Steel & Copper Plate Co., Chicago, died in that city, July 16.

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William Frederick Bossert, 84, president and founder of the Signal Accessories Co., Utica, N. Y., and the Bossert Corp., died in that city July 7.

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Thomas J. Foster, 70, assistant master mechanic of the National Tube Co., McKeesport, Pa., works, until his retirement three years ago, died at Pittsburgh, July 14.

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A. G. Davis, 61, secretary and auditor of the Pittsburgh, Allegheny & McKees Rocks railroad, a subsidiary of the Pressed Steel Car Co., Pittsburgh, died at Pittsburgh, July 8. He had been an employe of the Pressed Steel Car Co. 32 years.

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Frederick J. Greene, widely known inventor and manufacturer of Racine, Wis., died July 6, aged 63. He was founder and president of the F. J. Greene Engineering Works, F. J. Greene Mfg. Co., Christensen Machine Co., and Ideal Stitcher & Mfg. Co.

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Gilbert Follansbee, 45, general manager of the Toronto, O., and Follansbee, W. Va., plant of Follansbee Bros. Co., Pittsburgh, died at Steubenville, O., July 13, following an operation. He was a son of William U. Follansbee, founder of the company. He had been with the company since graduating from high school in Pittsburgh in 1907.

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Samuel I. Merrill, 75, who in 1901 organized the California Industrial Co., Los Angeles, later known as the Southern California Iron & Steel Co., and in turn absorbed by the Pacific Coast Steel Co. and the Bethlehem Steel Corp., died at Los Angeles, July 6.

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Charles B. Erhart, 62, former president of the Chris Erhart Foundry & Machine Co., Cincinnati, died recently. He succeeded his father in the business, and retired two years ago. One son, Charles C., now is president and treasurer of the company, and another, Thomas H., is vice president and secretary.

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Edward Kearns, associated with the Allis-Chalmers Mfg. Co., Milwaukee, for 35 years, died at Tacoma, Wash., July 9. He was 55. His home was in Bellevue, Ky., and he was attached to the Cincinnati headquarters of Allis-Chalmers. At the time of his death Mr. Kearns was supervising erection of generators in the No. 2 plant of the Tacoma municipal hydroelectric project at Lake Cushman.

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H. O. Swoboda, president and treasurer of H. O. Swoboda Inc., engineering firm, Pittsburgh, died at Pittsburgh recently. He was born in Germany and founded the engineering firm in Pittsburgh in 1912. He was the holder of several patents on electrical inventions and was a member of the American Society of Electrical Engineers, American Society of Mechanical Engineers and American Society for Steel Treating.

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Col. Weston Jenkins, 51, assistant general manager of the Revere Copper & Brass Co. Inc., Rome, N. Y., died near Amsterdam, N. Y., July 8. He was born in New York in 1881 and became identified with the steel industry in 1900 when he was named assistant superintendent of the Boonton Iron & Steel Co. Seven years later he became manager of the Susquehanna Iron Co. and from 1911 to 1919 was works manager of the Rome Brass & Copper Co. During the World war Colonel Jenkins commanded the 397th Infantry and served with distinction, receiving the Distinguished Service Cross and other citations.

Metals Price Index Rises

Wholesale price index of bureau of labor statistics, Washington, for metals and metal products for week ended July 9 was 80.1, compared with 79.8 the two weeks preceding and 79.9 prior to that.

Wheeling Steel Plans River Coke Handling Conveyors

Wheeling Steel Corp., Wheeling, W. Va., has submitted plans to the war department, Washington, to construct coke handling conveyors on the Ohio river. The proposal involves movable structural steel towers which will be equipped with hoppers to receive coke transferred from river barges by a floating hoist. The conveyors and hopper towers can be moved either up or down the river bank conforming with the stage of the river.

One plant is to be on the left bank of the Ohio river on property leased from the American Rolling Mill Co. at its blast furnaces at Ashland, Ky. The other conveyor will be built at New Boston, O., near the Wheeling Steel Corp.'s Portsmouth, O., plant.

Financial News of Steel Industry

NEW common stock of the Corrigan, McKinney Steel Co., Cleveland, to be issued at $1 par, for exchange of present Corrigan-McKinney common and for common and preferred stock of the Newton Steel Co., to become affiliated with Corrigan-McKinney, has been listed on the New York Curb exchange.

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Allegheny Steel Co., Brackenridge, Pa., has declared the regular quarterly dividend of $1.75 on the preferred stock.

May Iron, Steel Employment And Payrolls Decline

Washington — Employment and payrolls in the iron and steel and allied industries continue to decrease, according to the bureau of labor statistics, department of labor.

Two hundred and twenty iron and steel mills reported their May employment at 194,136, a decrease of 3.7 per cent from April and 22.4 per cent from May, 1931. Average weekly May payrolls in these plants were $2,898,719, a decrease of 3.5 per cent from April and 54.4 per cent from last May.

May employment in 41 cast iron pipe foundries was 6572, a decrease of 3.7 per cent from April and 44.8 per cent from May of last year. Weekly May payrolls in these plants were $93,870, a decline of 13.2 per cent from April and 64.3 per cent from May, 1931.

MIRRORS OF MOTORDOM

DETROIT

EXTRICATING Oldsmobile from the pocket into which it has been forced, largely by competitive and price conditions arising since the current line was introduced, is to be one of the major objectives of General Motors in 1933.

Regardless of intrinsic value and entirely on the basis of a comparison with what manufacturers are offering in the extremely low-price field, the Oldsmobile six appears to be over-priced.

The Oldsmobile eight, on the other hand, has felt the full force of Buick's concentration of selling effort upon its 3500-pound sedan in the $1000 class.

So, in its early stages at least, the program for 1933 is to free Oldsmobile from the jaws of this vise, which is partly of the Corporation's own making, revise it in price and—what is probably most important—make it the style leader of the entire General Motors line.

Thus far, the Corporation has been notably conservative in regard to body changes. In the matter of height of body and design of radiator shell, for example, there is a distinct line of cleavage between the Corporation and the remainder of the industry. It is safe now to predict there will be more changes in General Motors bodies in 1933 than in any previous year.

Would Repeat 1928 Success

It will be recalled that five years ago the Corporation's engineering staff took hold of a languishing Oldsmobile, built a larger engine with four instead of three main bearings, adopted 4-wheel brakes, completely redesigned the body and hood lines and for 1928 offered a line that went over big and re-established one of the oldest names in the industry. Especially from the standpoint of style, this operation is being repeated for 1933.

What General Motors will do with its low-price line—meaning Chevrolet and Pontiac—for 1933 to meet the new competition is taking shape. Obviously, these plans are well guarded and subject to change, but Detroit increasingly believes that a refurbished Chevrolet six and Pontiac eight will be General Motors' thrust at Ford, DeSoto, Plymouth and the new Essex and Willys.

Eights Have Achilles Heel?

Up to a few weeks ago, when Chevrolet like other General Motors units severely curtailed its advertising and merchandising promotion efforts, it was growing more positive in its espousal of six cylinders—"no more, no less." In this there was the suggestion that operating and servicing costs might prove the Achilles heel of the low-price eights. Chevrolet engineers believe the real test of these eights will come only after a year of service.

General Motors prides itself on an open mind. After claiming a monopoly of virtue for the V-eight engine, as installed in Cadillac, La Salle, Viking and Pontiac, the Corporation put straight eight engines into Buick and later into Oldsmobile, and in the literature of the first Buick eight series arraigned the V type with as much vigor as the other General Motors lines had acclaimed it. So, it is possible that a change might be made in Chevrolet's power plant, but a very definite commitment to a six certainly is evident.

A report that General Motors will do its own tool and die work, extending the integration program, is current at Detroit and is arousing considerable apprehension among the shops doing this work. Withdrawal of the Corporation's business would leave only Chrysler and Hudson as the major open-market buyers.

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At the half-way point in July it still appears that the month's production of passenger cars and trucks will show some decline from June, possibly about 10 to 15 per cent. Although scarcely noticeable in the daily run of business, Ford is taking in a little less steel and is now operating six open-hearth furnaces out of ten, compared with eight recently. The Ford schedule for July is 85,000 to 90,000 units, 5 to 10 per cent under June.

Hudson-Essex continue to operate at the best rate of the year, principally on the new light car which is expected to be shown at the end of this week. One report is that this new model, shorter than any automobile now on the market and priced at about $400, or competitive with the Ford four, is to be called the Jackson, although it had been stated at one time that the cost of establishing a new name dictated applying the name Essex.

Chevrolet assemblies last week showed a slight increase, but there is no basic change in the July schedule calling for about 30,000 units. Willys still feels the impetus of its new line. Graham will operate through July on a 5-day week in most departments, for one reason because of the new six.

Another Thrust at Steel

Recently it was reported that tire manufacturers visualized their new superballoons eventually doing the cushioning work of springs and shock absorbers. A parts interest was said to be experimenting with a chassis the wheels of which were mounted directly to the frame. Now, a Firestone official declares that highways of rubber latex, laid in the same manner as asphalt, are practicable and that rubber in the highway and rubber on the rim will make cushioning within the automobile itself unnecessary. Latex is now being used to make sponge-rubber cushions—supplanting springs—for some English cars.

EDITORIAL

Beware Lure of Bigness; It Is Deceptive

CONVENING under the auspices of the Silver Bay Industrial institute, the second annual conference on management problems of the smaller industries held last week served to give timely emphasis to the economic importance of small companies in the industrial development of the nation. According to the 1929 census of manufactures, the number of manufacturing plants in the United States in that year normally employing 500 or fewer persons was 208,241. Manufacturing establishments employing more than 500 workers numbered only 2718. It is estimated that 65 per cent of the country's industrial labor is employed in the smaller companies.

These figures should remind us that the problems of the small manufacturers do not ordinarily receive the attention they deserve. Americans have been accused of placing too much emphasis on size. We have been prone to boast of the bigness of our institutions. We have reveled in loud phrases such as "largest in the world," "greatest on earth," without realizing that size alone not always is an accurate yardstick of worthwhile achievement.

Fortunately the national trait of idolizing size has lost some of its glamor in the chastening experience of the past few years. It is evident to even the casual observer that many of the industrial giants, whose size and soundness in 1929 were impressive, today are no better off in meeting the present emergency than their smallest contemporaries. Inflexibility of organization, inertia and other attributes of great size today are proving to be severe handicaps to many once-envied large corporations. Their fixed charges alone constitute a burden of disconcerting proportions.

Flexibility and Sensitive Control Priceless Assets of Small Companies

It is to be hoped that the plight of some of the larger organizations will tend to emphasize the advantages enjoyed by those of modest size. One of the real assets of a small, compact industrial concern is its flexibility. In good or bad times a well managed small company is quicker on its feet that its large competitors. It can adapt itself to changing conditions much more readily. It can step in and grasp new opportunities while the giants are preparing for action. It is in a position to control its activities with a more delicate touch than the larger companies.

This important advantage was not overlooked in the discussions at Silver Bay; it was stressed by practically every speaker. Nevertheless, one can discern in the discussions of the conference a feeling that the executives of small companies often forget the benefits of flexibility. Many of them are tempted to throw away the advantages of being small, compact and alert in order to be big and to enjoy the glamor of bigness.

Those who attended the conference on Lake George were warned against this folly in no uncertain terms. "The small plant should avoid copying big business," declared one speaker. "Tend to your own knitting and do not spend too much time imitating the programs and modus operandi of your larger competitors," advised another. "The small plant must not fall into the error of great corporations in having favorites and barnacles." "Small industry, with the greatest opportunity in the world, can complicate itself and load itself down. Therefore it should beware of titles, assistants, . . . ," etc.

Visions of Grandeur in Palmy Days Led Many Firms Into Trouble

This is excellent advice. Had it been heeded in 1928 and 1929 there would be fewer industrial wrecks today. Consider how the lure of having their stock quoted on the "big board" led the management of many profitable small companies into unwieldly financial set-ups! How the craving of presidents for new plants and imposing offices resulted in the acquisition of herds of white elephants! How the grandeur of being the leaders in the industry hypnotized good small companies into forming mergers with stray cats and dogs to become shaky big corporations!

It is a sad fact that unbridled ambition or greed to grow up too rapidly was responsible for much of the trouble of today. Fortunately the experience of this depression is teaching management that profit and not volume, size or grandeur is the one and only yardstick of success in industry. As this fundamental truth becomes recognized generally, the virtue of the modest, well managed establishment will be more apparent. Then, as always in the past, the small plant with its undeniable advantages again will come into its own.

THE BUSINESS TREND

Prices, Lausanne, Congress Help Sentiment

BUSINESS sentiment is improving. The chief factor is the upturn in commodity price barometers, some of which have registered gains for five consecutive weeks. Thus far the strength in prices has been most noticeable in livestock, provisions, hides and leather and cotton. A rise in these and other commodities at this time is normal because of seasonal conditions, yet the gains in hogs, cattle and cotton are more than seasonal.

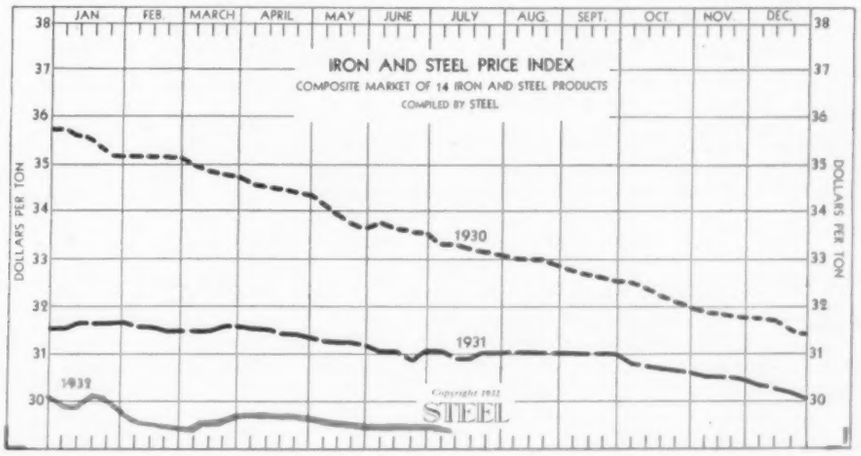
Observers will be reluctant to take rising commodity prices at face value until the base is broader. However there are signs of stiffening prices in groups other than grains and livestock. Within a month or six weeks it should be possible to determine whether the present encouraging development is a flash in the pan or the beginning of a steady rise in commodities generally.

Effects of the Lausanne conference are somewhat uncertain. The action taken is dependent almost entirely upon the future attitude of creditor nations. While there is no question but what the decision as to Germany's payments clears the atmosphere and paves the way for a more practical solution of the reparations problem than had hitherto been advanced, still the creditor nations and particularly the United States are yet to adjust the indicated settlement to the political desires of their people. Fortunately this phase of the problem will not be brought to decision immediately. In general the outcome of the Lausanne conference is viewed favorably.

Congress is about to adjourn, after having put on one of the weirdest exhibitions in the history of the republic. In recent months the influence of the approaching election was so apparent in the legislation proposed in both houses that the country probably is fortunate that congressional action has been no worse than it is.

Demand for Real Economy in Federal Expenditures Will Increase

The most vulnerable position of the administration and congress lies in their failure to cut federal expenditures in accordance with the needs of the times. From now on the matter of taxes will assume great importance in the thinking of the individuals who are called upon to pay them. Perhaps it was thought necessary on political grounds to postpone real worthwhile retrenchment until after election, but the delay is costly to the nation. Industry may be counted upon to demand in no uncertain terms cuts and savings in federal, state and local government expenditures far more drastic than has yet been contemplated by anyone in political office.



1932

July 9 .....$29.48
July 2 ..... 29.52
June 25 .... 29.52
June 18 .... 29.52
June 11 ..$29.56
June 4 .... 29.56

1931

July 8 .....$31.11
July 1 ..... 31.11
June 24 .... 30.99
June 17 .... 31.03
June 10 ..$31.03
June 3 .... 31.03

Auto Production Shows Steady Monthly Rise

Automotive production in May rose sharply over the April total, which, in turn, was fairly well above March. Canadian production was also larger. Trucks held about even. The total for five months of this year is slightly more than half the total for the similar period in 1931. Department of commerce figures of production, with comparisons by months are as follows:

	—United States—			Canada
1931	Total	Passenger cars	Trucks	Total
May	317,163	271,135	45,688	12,739
5 mo.	1,322,295	1,105,916	213,923	59,257
June	250,657	208,955	41,342	6,835
July	218,961	182,927	35,854	4,220
Aug.	187,197	155,321	31,772	4,544
Sept.	140,566	109,087	31,338	2,646
Oct.	80,142	57,764	21,727	1,440
Nov.	68,867	48,185	19,683	1,247
Dec.	121,541	96,753	23,363	2,432
Yr.	2,389,738	1,967,055	416,640	82,621
1932				
Jan.	119,344	98,706	20,541	3,731
Feb.	117,413	94,085	23,303	5,477
Mar.	118,959	99,325	19,560	8,318
April	148,326	120,906	27,389	6,810
May	185,149	151,683	27,393	8,221
5 mo.	689,196	570,705	118,191	32,557

Steel Plate Products Fall Back in May Total

After a gain in April over March fabricated steel plates fell off in May, according to figures gathered by the department of commerce from 51 identical manufacturers. Totals are running about half those of 1931 when five months of each year are compared. Figures follow.

In Tons

1931	Total	Oil storage tanks	Blast furnaces	Miscellaneous
May	26,210	2,411	230	20,370
5 mo.	139,138	18,881	1,274	96,940
June	22,806	4,679	356	15,817
July	27,261	4,136	51	18,785
Aug.	24,282	1,138	125	18,331
Sept.	33,473	4,024	254	18,692
Oct.	20,839	1,955	200	16,336
Nov.	18,268	1,755	401	15,058
Dec.	16,442	778	86	13,891
Year	302,509	37,346	2,747	213,850
1932				
Jan.	17,613	4,783	129	12,124
Feb.	17,755	4,115	40	11,777
Mar.	12,564	1,161	150	10,022
April	14,074	1,406	30	11,167
May	13,018	2,310	.....	9,356
5 mo.	75,024	13,775	349	54,471

Fabricated Shapes Gain Tonnage Seasonally

Bookings of fabricated structural steel in May, according to figures of the department of commerce, made a decided gain over those of April, while shipments made only a slight increase. Total bookings for five months of 1932 were somewhat more than a third of the total for the corresponding months of 1931. Comparisons follow:

	Bookings		Shipments	
		Per cent of		Per cent of
1931	Tonnage	capacity	Tonnage	capacity
May	152,400	38.1	145,200	36.3
5 mo.	932,800	46.6	776,800	38.8
June	172,400	43.1	159,200	39.8
July	159,600	39.9	180,800	45.2
Aug.	124,000	31.0	167,600	41.9
Sept.	194,400	48.6	149,200	37.3
Oct.	109,200	27.3	143,600	35.9
Nov.	90,800	22.7	111,600	27.9
Dec.	97,600	24.4	122,800	30.7
Year	1,880,800	39.2	1,811,600	37.7
1932				
Jan.	48,400	12.1	65,600	16.4
Feb.	62,000	15.5	78,000	19.5
Mar.	64,400	16.1	82,400	20.6
Apr.	64,800	16.2	68,400	17.1
May	90,800	22.7	72,400	18.1
5 mo.	330,400	16.5	366,800	18.3

Foundry Equipment Orders Make Marked Gain

Foundry equipment orders, as represented in the monthly index of the Foundry Equipment Manufacturers association, covering 16 producers, made a heartening gain in May, with an index of 18.0, compared with 13.7 in April. The May index, however, was lower than that for February and March. Comparisons by months follow:

	1932	1931	1930	1929
Jan.	20.5	65.3	160.1	180.5
Feb.	27.6	54.7	196.4	197.0
March	27.5	174.4	164.1	209.4
Apr.	13.7	57.7	122.8	172.6
May	18.0	54.1	92.7	177.7
June	.....	40.9	102.1	177.3
July	.....	38.7	90.6	219.3
Aug.	.....	16.9	85.2	229.5
Sept.	.....	31.9	91.0	216.3
Oct.	.....	44.8	50.0	245.3
Nov.	.....	17.2	45.3	128.6
Dec.	.....	26.3	59.8	208.0

Base: Average monthly shipments for 1922-23-24 taken as 100.

Steel Boiler Orders Gain In Total for May

Orders for steel boilers, compiled from reports to the department of commerce by 72 identical manufacturers, gained in May over April. In May 271 boilers covering 263,981 square feet were ordered, while in April the total was 245 boilers, with 241,421 square feet. Of the May total seven were for marine use the remainder being of stationary industrial type.

Steel Castings Output at Year's Lowest

Production of commercial steel castings in May showed the lowest figure for the year, continuing the decline that has been fairly steady for more than a year. Bookings were at the rate of 7.7 per cent of capacity and production was at 9.8 per cent of capacity. This compares with 30.3 per cent and 33.5 per cent, respectively a year ago. Detailed figures follow:

1931	Total bookings tons	Per cent of capacity	Total production tons	Per cent of capacity
May	39,052	26.8	43,154	29.6
5 mo.	220,405	30.3	244,033	33.5
June	26,136	18.0	35,018	24.1
July	32,869	22.6	31,751	21.8
Aug.	27,458	18.9	30,186	20.7
Sept.	23,073	15.8	26,948	18.5
Oct.	22,854	15.7	24,113	16.6
Nov.	20,001	13.7	23,139	15.9
Dec.	20,799	14.3	22,064	15.2
Year	393,595	22.5	437,252	25.0
1932				
Jan.	17,393	11.8	18,395	12.5
Feb.	17,015	11.6	18,759	12.8
Mar.	16,593	11.3	20,433	13.9
April	12,801	8.7	17,474	11.9
May	11,340	7.7	14,457	9.8
5 mo.	75,088	10.2	89,610	12.2

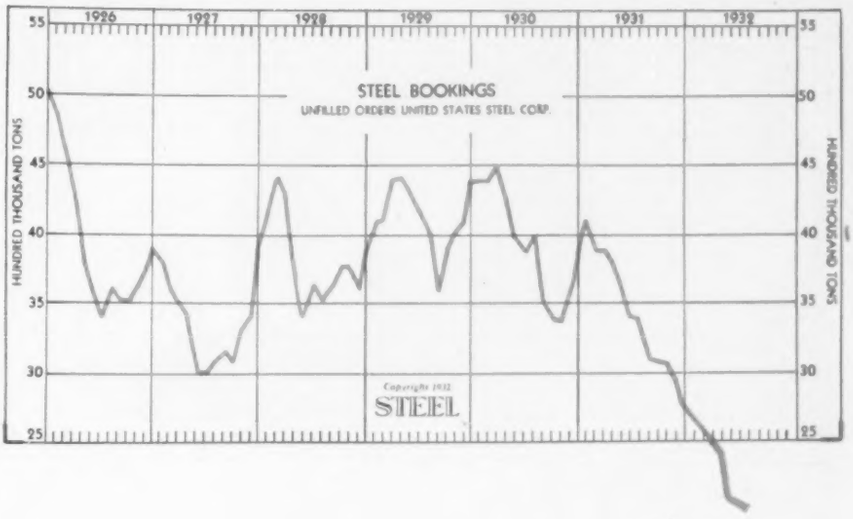
Malleable Castings Rise In May Production

Malleable castings production in May rose slightly over the total for April, but with that exception was the lowest for the year and is slightly greater than half the rate for five months of 1931, according to figures gathered by the department of commerce. Comparisons are as follows:

1931	Output, tons	Shipments, tons	Orders booked, tons	Per cent operated
May	31,964	36,957	28,716	32.1
5 mo.	170,145	177,408	166,461	34.0
June	24,248	28,602	22,495	24.5
July	20,223	23,985	19,667	20.0
Aug.	18,821	20,904	18,705	18.9
Sept.	18,485	18,727	17,854	18.6
Oct.	20,444	17,802	18,558	20.4
Nov.	17,984	18,336	18,971	18.3
Dec.	21,503	20,206	19,811	21.5
Year	311,853	325,970	302,522	26.1
1932				
Jan.	22,216	21,572	22,036	23.5
Feb	21,578	21,325	19,709	23.1
Mar.	19,597	21,337	18,046	20.5
April	16,758	18,328	17,630	18.0
May	17,430	18,953	17,297	18.7
5 mo.	97,579	101,515	94,718	20.8

Fresh-Flo Pump & Mfg. Co. Inc., Indianapolis, has increased capital from 1500 to 4000 shares no par value.

	Million Tons	
	1932	1931
June	2,034	3,479
May	2,177	3,620
April	2,326	3,897
March	2,472	3,995
Feb.	2,545	3,965
Jan.	2,648	4,132

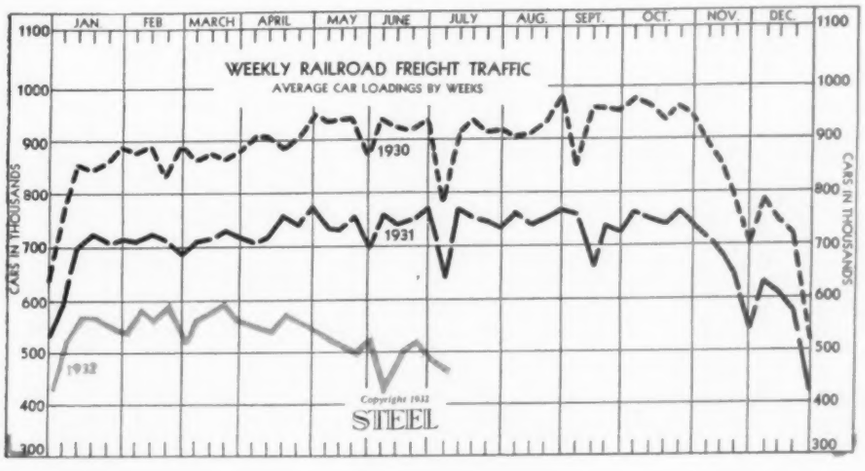


Backlog of Steel Bookings Shrinks for Fifteenth Consecutive Month

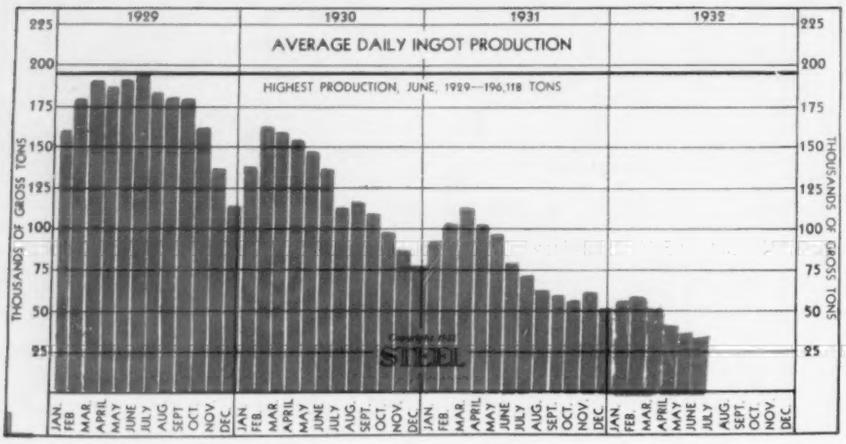
Unfilled bookings of the United States Steel Corp. on June 30 decreased 142,394 tons to a total of 2,034,768 tons. This compares with 2,177,162 tons on the books May 31 this year, and 3,479,323 tons on June 30, 1931. This is the fifteenth consecutive month in which the corporation has reported a decrease in unfilled tonnage and the lowest figure since these reports were first issued in June, 1902. Last year in June the unfilled tonnage decreased 141,129 tons; in 1930, a loss of 91,163 tons was reported; in 1929, a decrease of 47,257 tons; but in June, 1928, a gain of 220,187 tons was recorded.

Freight Traffic Declines Slightly in First Week of July

Loadings of revenue freight for the week ending July 2 totaled 489,273 cars, according to reports from the car service division of the American Railway association. This was a reduction of 9526 cars below the preceding week, 178,357 cars below the corresponding week in 1931 and 302,780 cars under the same period two years ago. Decreases were reported in the movement of all commodities with the exception of ore, coke, grain and grain products. Loadings of revenue freight for the first half of 1932 total 13,622,871 cars compared with 18,352,855 cars for the same period of 1931 and 22,424,821 cars for the first half of 1930.



	1932	1931
July 2	489,273	667,430
June 25	498,599	759,363
June 25	498,599	759,363
June 18	518,409	739,094
June 11	501,760	723,409
June 4	447,387	761,084



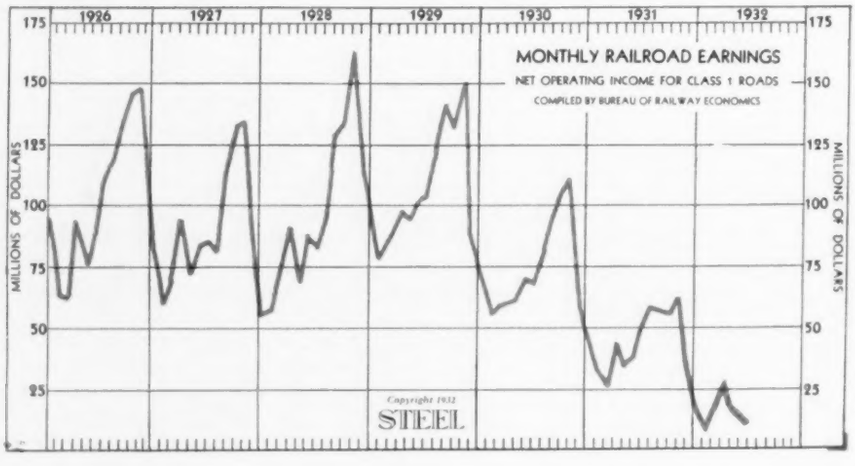
	1932	1931
June	34,511	81,837
May	42,540	98,140
April	47,625	106,421
March	52,187	117,475
Feb.	58,308	106,126
Jan.	56,133	93,042

Daily Average Ingot Output Falls Below July, 1921, Level

With an operating rate of 15.96 per cent, the average daily output of steel ingots in June slumped to 34,511 gross tons, lower than the 36,713 ton rate of July, 1921, and the smallest for any month in modern steelmaking history. In the first six months of 1932, according to the American Iron and Steel institute, total output of open-hearth and bessemer ingots was 7,567,769 gross tons with an operating rate of 22.43 per cent. In the first half of 1931 production was 15,559,860 tons or 47.25 per cent of capacity. The current daily rate of 34,511 tons compares with a revised 42,540 tons for May, 1932, and 81,837 tons for June, 1931.

Railway Earnings in May Decline To 0.59 Per Cent on Investment

For the month of May the net railway operating income of 167 Class 1 railroads shrank to $11,950,652, which, for that month, was at the annual rate of return of 0.59 per cent on their property investment. In May last year net operating income totaled $41,699,649 or 2.05 per cent. According to the Bureau of Railway economics, net income for the first five months of 1932 totaled $99,495,673 which was at the annual rate of return of 1.11 per cent on their property investment. Sixty-five class 1 railroads operated at a loss in the first five months of 1932, of which 21 were in the Eastern, 13 in the Southern and 31 in the Western district.



R. R. Earnings

May, 1932	$11,950,652
April, 1932	20,621,017
May, 1931	41,699,649

FORD AXLES ARE PRESS FORGED AND PICKLED CONTINUOUSLY

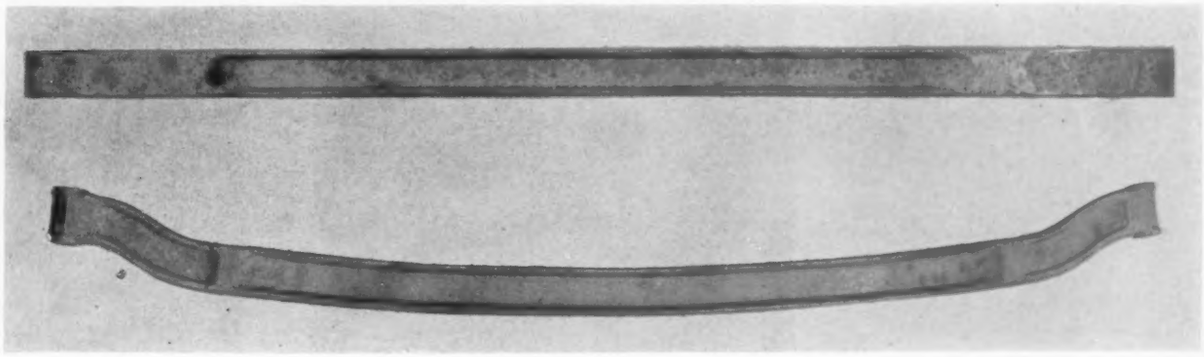
BY E. F. ROSS
Associate Editor, Steel

Front axle in the dies of the 1800-ton press ready to be forged on both ends in one operation

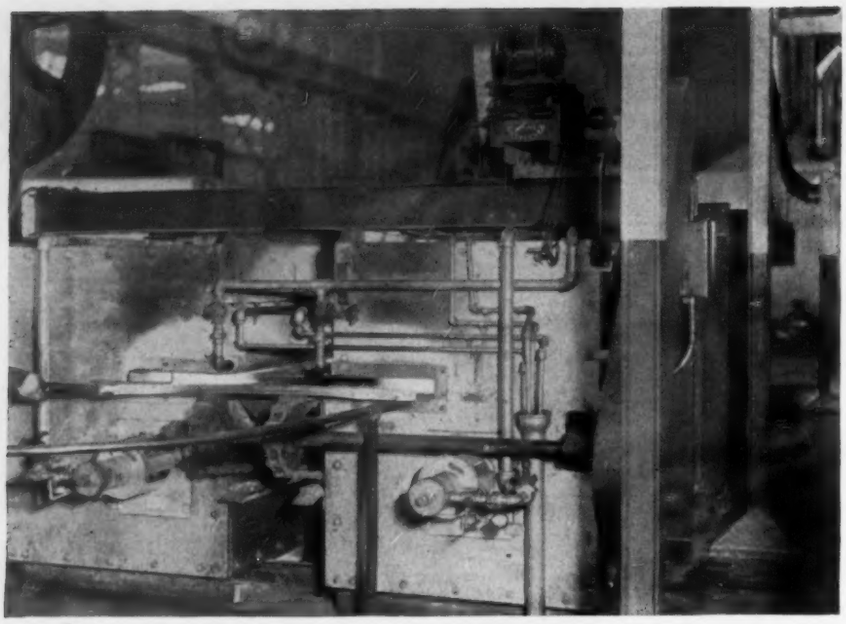
IN THE manufacture of automobiles, the production of steel forgings constitutes a division of greatest importance. Forgings are required to carry heavy loads and are subjected to severe stresses, therefore, they must have adequate strength and resistance to fatigue to provide unquestionable safety to life and property. This is a matter of no little moment, for modern car design constantly is seeking to reduce weight without sacrificing strength, in fact, it seeks to increase strength. Only through the use of improved steels, improved production processes and improved heat treatments can this goal be possible of attainment.

With the introduction of its new V-8 and Model B, the Ford Motor Co. revealed that the months in which its assembly lines were closed down had been spent in adapting old and developing new metal fabricating processes to the production of a low-priced car possessing greater roominess, lightness, speed and ruggedness, As pointed out previously, the new eight weighs about 130 pounds more than Model A and the four about 60 pounds less, but making allowance for the heavier engines and use of malleable cast iron in the hubs and differential housings, the total amount of steel remains about the same. Bodies, frames and various other parts of the cars require slightly more steel, with the result that a number of the forged members actually are of lighter weight. Nevertheless, there is increase rather than decrease in physical characteristics.

One of the main stress bearing members of the new cars is the front axle, a steel forging which weighs 25½ pounds and has a tensile strength ranging between 115,000 and 125,000 pounds per square inch. It is of I-beam type and is purchased from the mill as a 29-pound die-rolled billet with an I-beam center sec-



The 29-pound die-rolled billet from which the front axle is forged is shown above. In one operation the billet is formed to the shape shown below. Flash trimmed and ready for machining this forging weighs 25½ pounds



Front axle billets are heated on their ends only by passing them through a gas-fired conveyor-type furnace flatwise. In the illustration, one of the billets is being removed from the furnace

tion and solid ends to provide for forming the spindle bearing supports. The billets are heated on their ends only by passing them flatwise through a gas-fired conveyor-type furnace arranged with a double-chain conveyor in the center and a side-opening heating chamber on either side. They are delivered to the furnace by a monorail chain conveyor and hand charged into the furnace.

As a billet emerges from the front of the furnace with the ends heated to 2200 degrees Fahr., an operator removes it with a pair of tongs and by sliding it around a curved rail delivers it to a second operator who places it edgewise under an 1800-ton press. The first operation is simply to bend the billet to the proper curvature to fit the die impression as well as to remove scale, this being accomplished by a series of air jets. The billet then is placed in the die and with a single stroke of the press the spindle bearings on both ends are formed simultaneously. By hammer methods, 10 minutes were required to forge an axle one end at a time, but with the press the time has been reduced to 2.6 minutes.

Press of Large Size

The press, the frame of which is a single steel casting, requires a floor area 10 x 14 feet, weighs 275,000 pounds, has a direct-connected motor drive and operates at 30 revolutions per minute. Operating features are a quarter-revolution clutch, and air trip and centralized lubrication.

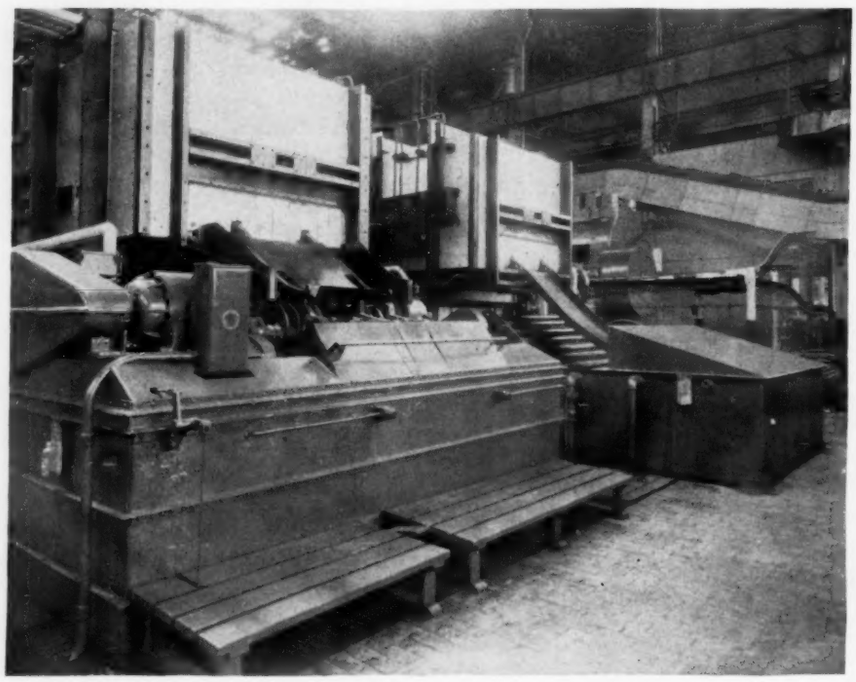
Removed from the press, the axle is flash trimmed in a trimming press and hung on an overhead conveyor to be carried to the heat treating furnaces near by. The heat treating is performed in a continuous electric furnace which is elevated above the floor level and which has as a new feature an automatic electrically-operated quenching fixture to prevent warping. As the axle is discharged from the furnace, it slides down an incline and comes to rest on two arms which transfer it at once into the horizontal quenching fixture. Here it is clamped firmly, then by cam action, the fixture rotates to immerse the axle in the quenching medium.

This fixture has five clamping stations and as a new axle is quenched, the axle which entered the fixture first reaches the opposite side of the tank and is automatically unclamped to permit its sliding down a chute on a conveyor to be carried to the draw furnace. With this device warping and distortion is reduced to a minimum.

Pickling operations in the Ford plant are noteworthy, for they are conducted on a continuous basis and the machines are installed in line of production. This arrangement is made possible by a complete elimination of acid fumes, the elimination being effected by water seals provided at each end of the machines. The lead-lined acid tank is located in the center and is totally enclosed in a hood lined with monel metal. The seal at the charging end of the machine serves as a cold water dip, while the seal at the discharge end serves as a hot water rinse. All of the pickling units are of the conveyor-type and are similar in design but vary in size according to the size of work to be passed through, therefore, description of the machine for the front axles will suffice.

Axles Carried in Racks

The loading end of the axle pickler is shown in an acompanying illustration. The conveyor consists of two parallel chains, one at either side of the unit, which are driven by sprockets, two at each end of the machine. Connecting the two chains at intervals of about 2 feet are round shafts each carrying bronze racks in which



Two electric furnaces are utilized in the heat treatment of front axles, this illustration showing the discharge ends of the two units. The furnace at the left is equipped with an electrically-operated quenching fixture to prevent warping

12 axles can be supported. Two operators load these racks and two operators at the opposite end unload.

The chains travel horizontally over the top of the machine, but inside they travel over a series of sprockets so as to immerse the axles first in cold water dip, then to elevate and lower them into the 8 per cent sulphuric acid solution for the pickle where their movement is in a horizontal direction, then to elevate and lower them into the hot water rinse, and finally to elevate them to the unloading position. The capacity of this machine is 500 axles an hour and each axle is pickled for 25 minutes.

Four Similar Machines

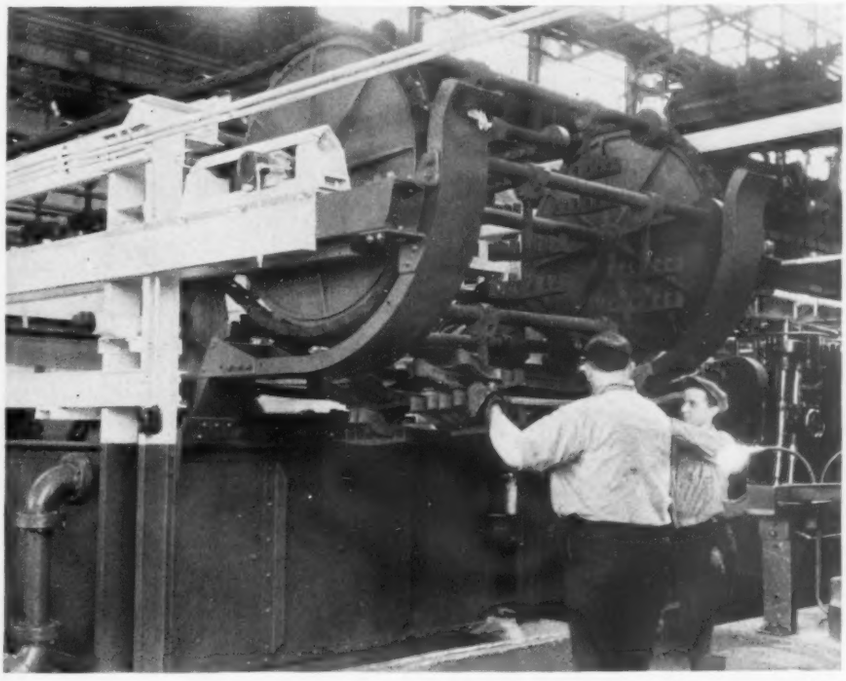
A machine of similar type is used for pickling rear axle housing flanges and another of considerably larger size for pickling strip steel for frame fabrication. Two more are installed in the small forgings shop for treating miscellaneous parts and in these the small parts are loaded into acid-resisting baskets which are suspended from the bronze hangers. In these units from 15 to 17 minutes is required for the work to pass through.

As stated in a previous article, the Ford company is turning to the extrusion process for the production of certain forgings. One of the most notable is the front spindle for trucks, a part which is considerably heavier than for the passenger cars. This finished forging weighs 10 pounds and to make it by hammer methods it was necessary to use a piece of stock weighing 15 pounds and to subject it to 7 separate operations.

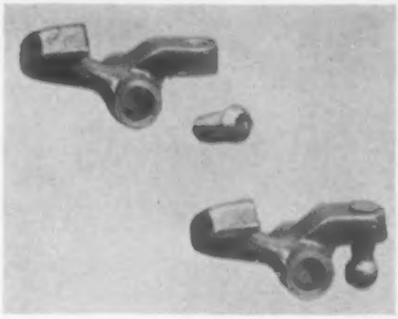
By the extrusion method, a piece of round stock 3⅛ inches in diameter 4⅝ inches long and weighing just a few ounces over the finished weight is heated, placed in a large press and in one stroke of the ram is squeezed to final shape in the die impression. Tests conducted on the extruded spindles reveal the tensile strength to be the same as for those made by hammer forging, but in fatigue the ratio is approximately 2 to 1 in favor of extrusion.

This distinct improvement in fatigue characteristics appears to result from the fiber or grain arrangement of the steel in the extrusion process and its relation to the stresses in this part.

FOURTH of a series of articles describing metalworking processes used by the Ford Motor Co. in building its new automobiles. This one describes some of the forging, heat treating and pickling operations, a subject which will be continued in an early issue. Previous articles were devoted to welding methods; the first appearing in the June 6 issue of STEEL, the second in the June 20 issue and the third in the July 4 issue.



Pickling is performed on a continuous basis and the machines are installed in line of production. Acid fumes are eliminated by water seals on the pickling tanks. The axle pickling machine shown here has a capacity for 500 axles an hour



Spring perch and shock absorber ball before and after assembly. The hardened ball is riveted in position electrically

Considerable experimentation has been necessary to determine the best size and shape of billets to be used. For certain forgings the round billets are placed in the dies on end and the pressure is applied along the axis of the billet; for others, as for example the spindle just described, the billet is placed in the dies horizontally and the pressure is applied transverse to the axis.

Valves for the new cars are of high alloy content and are made by casting and forging. When produced by casting, they are cast in a horizontal position. These valves are subsequently heated and struck in a press die; the heating serving as a strain draw and the striking serving to bring the dimensions of head and stem to closer limits. Finishing of the valves, of course, is performed by a series of precision grinding operations.

The shock absorber ball and spring perch for the rear of the car is an interesting assembly. The principal member is a steel forging, the lower end of which is flash welded to a projection on the rear axle housing flange. It is through this arrangement that the rear spring of the car is mounted back of the rear axle to permit the use of a flatter and longer spring and to lower the body. As shown in an accompanying illustration, this forging has in its central part a drilled hole for the spring perch bushing and just above this a short arm supporting the hardened shock absorber ball for connection to the shock absorber link.

Electric Upsetting Used

This shock absorber ball is made as a separate piece with the ball formed on the end of a pin, then hardened. In assembly, the pin is inserted in a drilled hole in the spring perch forging and is riveted securely by upsetting the pin electrically. This operation is performed by placing the forging with the pin inserted in the die of an electric resistance heating machine. A copper electrode is lowered to contact with

(*Please turn to Page* 34)

Tax Crushing Lake Superior Iron Mining Industry

BY CLARENCE B. RANDALL
Vice President, Inland Steel Co., Chicago

MUCH has been written of the increasing burden of government on industry, through excessive taxation. A startling expose of the disproportionate tax load under which the Lake Superior iron mining industry is laboring is presented in this paper by Clarence B. Randall, who directs iron ore mines and related development work for the Inland Steel Co. Presented at the recent meeting of the American Iron and Steel institute in New York, Mr. Randall's comments excited wide interest and constitute a serious indictment against the extravagances of state legislative bodies and local municipal governments in the iron ore country

ONE of the significant by-products of the distress through which industry and the nation as a whole are passing is the sudden realization by people in all walks of life that the burden of government as manifested through taxation not only bars the return to prosperity, but threatens the very life of our industrial institutions.

A tremendous snowball of public opinion is rolling up which demands in no uncertain terms that in all governmental and municipal activities the nonessentials be eliminated, and the necessities be administered in terms of strict economy. The public can now visualize the impetus that would be given to manufacturing and commerce, and the days of employment that would be available to labor, if the revenue thus diverted were available to ease the strained credit situation. The benefits accruing from social activities of government are weighed against those that would acrue from the same amount of expenditures through normal business channels, and are found wanting.

Abnormal Taxation Problem

In the light of this general interest in the subject it would seem to be timely to review for those who may not be accurately informed concerning it, the peculiar and abnormal problem of taxation that confronts the iron mining industry of the Lake Superior district. While in other parts of the country the tax situation is grave, it is unquestionably conservative to say that at no time or place in our industry has any industry attempted to go forward under the weight of such a disproportionate tax burden as that which rests at this time upon the Lake Superior iron mines.

This is not a result which has happened suddenly, but represents years of tax accretion, with changes coming all but imperceptibly and with the total always increasing. . . . One thing is certain: The fault lies not with the personnel of the official staffs of the states of Michigan and Minnesota who have been charged with the duty of appraising mineral properties for taxation. The tax commissions and the mine appraisers of those two states have uniformly been men of marked ability who have with impartiality and integrity administered the systems of taxation prepared for them by the legislatures. The responsibility must rather be divided between the legislative bodies on the one hand, insofar as they have actively sought the result obtained, or at best not prevented its happening, and the local municipal bodies on the mining ranges, who have in some instances established standards of extravagant spending that are without precedent in history.

No graphs or statistical studies are needed to present the staggering facts as to the total of mining taxation. It is enough, for example, to realize that at many times when the ore is loaded in cars ready for delivery to the railroad the tax cost per ton is greater than the entire mining cost, and that for the industry as a whole, even in a peak year such as 1929, the total dollars paid for taxes exceeded by a wide margin the total dollars paid for labor.

In these trying days of unemployment, the public has come to appreciate, as never before, the practical value of a payroll, and yet here is an entire industry that is required to pay out more annually to the government which supervises its activities than it does to all the people from whom labor is provided in the mining of its product. Figuratively speaking, each man in the mine as he bends to his task carries on his back a nonproducer, and each pair carry still a third. Another striking comparison is the fact that each year in Minnesota the total dollars paid for taxes by the iron mining industry is greater than the entire annual cost of operating the state government.

When the stranger turns for the first time to the story of the extravagant spending of public funds by local governing bodies, he is incredulous. He finds it hard to believe that such situations exist in the United States. He is startled to learn that under our democratic form of government, a city can be built up where the cost of the public buildings equals the value of all the other buildings in the city—that a city of 2000 people on the range would spend $370 per inhabitant in the same year that a city of the same size not on the range spent $16.35.

A wide variety of statistical tables have from time to time been made with a view to rendering this complex picture simple and vivid, but none is more striking than the study recently made by the Minnesota tax commission in connection with pending banking legislation.

(The table referred to gives the number of mining corporations showing profit in 1930 as 47; their net income as $38,343,286.08; their taxes as $16,543,334.88; and "per cent of taxes to net income" as 43.14 per cent.—*Editors.*) It is important to note that the net income of mining companies as given is income before deduction of taxes. When taxes imposed under authority of the state are deducted, the total net income of the 47 mining companies showing a profit drops to $21,799,951.20 as compared to $16,543,334.88 of taxes paid to the state. In other words, in 1930 taxes were 75 per cent of the real net income.

Ingenuity Is Challenged

The task of designing an ideal system of mining taxation which would provide continuity of income for local government without unfairly penalizing an industry of fluctuating annual volume and limited life, challenges the best ingenuity of economists and experts in municipal government.

In Michigan the underlying tax law of the state provides that all property be assessed as its true cash value irrespective of the class or type of property involved. In 1911 it was felt that the difficult task of thus valuing mining property should be withdrawn from local assessing officers, and J. R. Finlay, an eminent mining engineer, was employed to make an appraisal of the mines of the state. He followed in general outline principles previously laid down by President Hoover, and the so-called Finlay method became the

model for all subsequent appraisals.

By this method the value of a mine is arrived at by determining the present worth of the estimated annual profit to be received from the sale of the ore over the expected life of the property. The first step is the study of the geology of the particular mine to determine its known reserves and its possibilities for future discoveries, from data submitted by the operator and by personal inspection. Past performance is taken as an indication of the future both as to production and profit factor. The operator submits for five previous years, its cost of mining and of transportation, and market price when sales are made.

From these three factors of tons in reserve, average annual production, and average annual profit, the calculation as to the present worth of future profit during the life of the mine is made, and the value arrived at. One striking thing about the Michigan plan is the strict focusing of responsibility, for in the first instance the physical study is made and the value computed by the same official, the appraiser of mines. Another is the flexibility that is maintained. The Finlay method is regarded as a guide rather than a fixed unit of measurement, and when manifest injustices of absurd valuations would result, it is deviated from.

The Minnesota System

In Minnesota, likewise, it was early apparent that if *ad valorem* taxes were to be made applicable to the mining industry, true cash value could not be determined by the familiar standard of reference to known cash sales of like property, since obviously the fee simple title to large iron ore mines is rarely sold. The estimated present worth of future profits was substituted as an index.

To simplify the complex task of applying this principle, the Minnesota tax commission set up nine classifications of ore, varying as to quality and cost of production, and although collecting each year complete data as to the physical condition of the properties and operating costs, the commission expresses its valuation by assigning each of the known reserves to one of the various classifications, each of which bears a fixed rate of value per ton. The physical data upon which the valuations are based are submitted to the commission by engineers and geologists from the School of Mines at the University of Minnesota. In a business involving as many variables as mining, new situations are constantly arising, and these are met by the commission by the exercise of their best judgment in the light of all the circumstances.

The legislature in Minnesota, however, early marked the iron ore industry as a subject for special and unfavorable consideration. In 1906 the state by constitutional amendment had frankly departed from the principle that taxation should be equal, and classification of property for assessment at varying rates was substituted, so long as taxation within each class remained equal. A succession of classification statutes was passed, the present contrasting ratios of value being as follows:

Class	Per cent of true and full value
1. Iron ore	50.0
2. Household goods	25.0
3. Unplatted real estate	33.5
3a. Agricultural products and machinery	10.0
4. Platted real estate	40.0

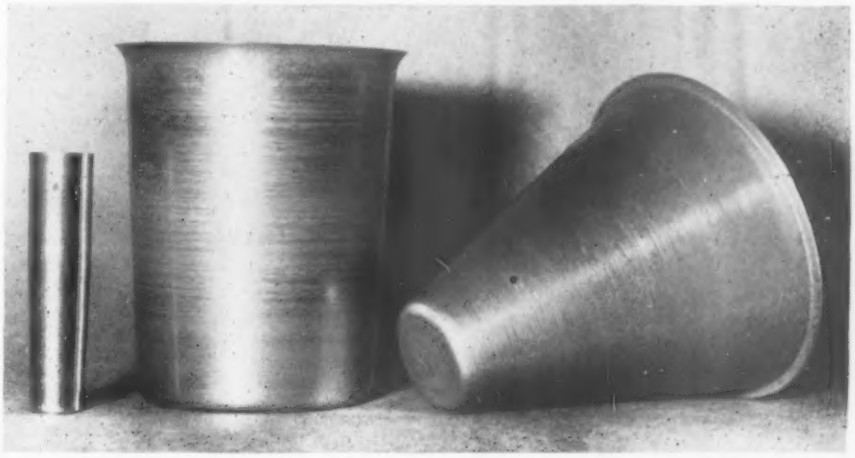
Historically, the purpose underlying this singling out of iron ore for the highest ratio was a desire to provide revenue for state government. In fact, it was freely predicted at the time that it would render the balance of the state free of taxes for state purposes. From that point of view, it has been disappointing, as if the ratio were dropped to 33 1/3 per cent, the state would lose only about a half million dollars per year. But as so often happens when legislation or in fact any other plan is adopted with attention focused on a single purpose, an unexpected consequence followed this differentation of ratios which was of tremendous importance. It broadened the base of assessed values in the local communities and thereby increased the spending power.

Self-seeking men in the mining towns, with a flair for spending other people's money, were quick to see the possibilities of this situation, and so it came about that levies were made up, not by ascertaining what sum of money was reasonably required for local government, but by the simpler expedient of fixing the levy at the maximum, and spending all the money that this produced. Of course, it follows conversely that no greater blow could be struck at local extravagance by the state of Minnesota than by removing the discrimination, and dropping mining lands back to at least 33 1/3 per cent.

Not being content with this situation, the legislature of Minnesota in 1921 passed the occupation tax by which a tax of 6 per cent is levied on the difference between cost and the market price of ore. In its practical application the tax is substantially greater than 6 per cent, since the cost deductions permitted do not include interest or depletion, and only about 83 per cent of the actual operating expenses. It was thought that this ended the sequence, but such was not the fact, for in 1923 a correlative tax of 6 per cent was levied on royalty. To be fair, it was the intention of the legislature that this should be paid by those who received the royalty, but through the medium of covenants to pay taxes contained in mining leases it was at once passed on to the mining companies.

Throttling the Industry

It has not been meant to suggest that there is any substantial difference between the states of Michigan and Minnesota with respect to the tax burden as a whole which rests on iron ore mining. Different methods have been followed, but in each case a result has come about which is throttling the industry, and quite apart from considerations of what is fair, the question naturally arises of



SPECIAL QUALITY NICKEL DEVELOPED FOR SPINNING: Produced by the Huntington Works of the International Nickel Co. Inc., New York, this product, considerably softer than regular nickel, has improved spinning qualities due to the reduction of certain elements which affect the initial strength of nickel and the rate of work hardening. The pieces shown above were spun directly from flat blanks without initial draws or intermediate anneals. The new material softens at a lower temperature and torch annealing can be used effectively, although most shapes can be completed without annealing, a better finish being obtained on highly worked surfaces due to the fine grain structure of the metal

whether this is good business for the lake states. Is it sound conservation? Is it a wise promotional policy?

An extremely simple but vitally significant comparison tells the story. In 1917 and 1929, Lake Superior iron ore shipments were substantially the same in tonnage, but in 1929 fifty-four million tons of steel were produced against only forty-four million in 1917. Where did the raw material come from for that 20 per cent increase in steel output? From renewed activity in eastern iron mines (no more does lake ore cross the Alleghanies), from importations of foreign ore and foreign pig iron, from greater use of scrap, from recovery of flue dust formerly allowed to waste, etc.

Every effort is being made to avoid having to use the high-cost lake ores, and as soon as brightening business skies permit, the quest will be pursued with renewed vigor. No more tragic error could be made by the people of Michigan and Minnesota than to build their policies on the assumption that iron ore may be taxed at will because the steel industry has no alternative source of supply.

First of all, the two states are in competition with each other for future mineral development, and within either one of the states each mining community is in potential competition with every other to attract further capital to invest within its limits. Apparently it is not yet fully appreciated that in considering new mining properties the first inquiry made by administrative officers is as to the tax rate. It is incongruous but true that a mineral prospect located in remote territory entirely removed from civilization and lying outside any incorporated village or town is at the present time in the most favorable situation for development.

More Competition Rising

But more than that, both states and all of their mining towns are in potential competition with a wide number of other sources. Closer to Lake Erie than Duluth are our Canadian neighbors who beckon to their undeveloped magnetites and siderites, with assurances not only of freedom from excessive taxation, but of a cash bounty of 50 cents a ton on all ore shipped. In Wisconsin, within easy distance of Chicago, lie not only Baraboo and Mayville, but magnetites, waiting for concentration, as desirable as those so much talked of on the eastern Mesabi range.

With completion of the Great Lakes waterway, Lake Erie ports will have readily available the foreign ores and pig iron now finding their way into eastern markets in such volume, and anyone familiar with the facts knows that ore transported by water can be carried a long distance for the present tax cost per ton. Missouri ores will be tributary to Chicago when the Mississippi waterway is soon completed, and iron units are already finding their way into blast furnaces from the waste coal ash of large electric generating plants.

The price to be paid for stability through scientific knowledge is a crushing increase in taxes. The moment a diamond drill or an underground drift cuts an enlargement of a known ore body, a new charge has been added to the annual cost no matter how deferred the future development may be. This is fundamentally unsound. . . .

Look to Beneficiation

Nor is it merely exploration that is involved. The vital matter for the future of mining in both states is the development of processes of beneficiation which will render merchantable the great potential reserves of low-grade material. A fine beginning has been made on this subject, but it is constantly being retarded by the fear that the discovery of new processes may add to the tax burden.

Another respect in which the local communities and the mining companies have a common interest that is being adversely affected by the tax laws is that of reducing seasonal unemployment. . . The obvious solution to the problem for the common good of all concerned would be to establish at this time the underground operations which must ultimately follow the open pits, and operate them in the winter, stocking the ore for shipment during the following season. A straight line of employment could thus be maintained for labor. In Michigan this could be done, for ore in stockpile on the premises has the same tax status as though it were in the ground, but in Minnesota it would be utterly impossible, for stockpiled ore remaining on the premises on May 1 is still further burdened with an additional personal property tax. Here again the rigid persistence of a traditional form of taxation in circumstances to which it is unsuited interposes a barrier to the economic welfare of laboring people and of the local communities.

If ore could be produced from open pit mines and stocked on the premises without the additional penalty of a personal property tax, much work could be provided. To avoid that tax, however, ore thus mined to provide relief would have to be shipped promptly. Shipment, involves a cash outlay for royalty, and $1.81 per ton in transportation charges on ore that is not wanted at lower lakes and for which in many cases no storage space is available. Such relief obviously cannot be given on those terms.

THIS life-size bust of Miss Katharine Cornell, the well-known actress of "The Barretts of Wimpole Street" fame, is made of 18-8 *chrome-nickel corrosion-resisting steel and was cast and finished by the Cooper Alloy Foundry Co., Elizabeth, N. J. Karl Illava, New York, was the sculptor. As far as known, this is the first time life-size statuary has been cast in* 18-8 *stainless steel. The bust was on tour with the road show during its run. Thickness of the casting varies from* ½ *to* ⅝*-inch; weight is* 65 *pounds. The metal was poured from a single ladle at a temperature of* 2950 *degrees Fahr.*

Association Will Certify Welders of Its Members

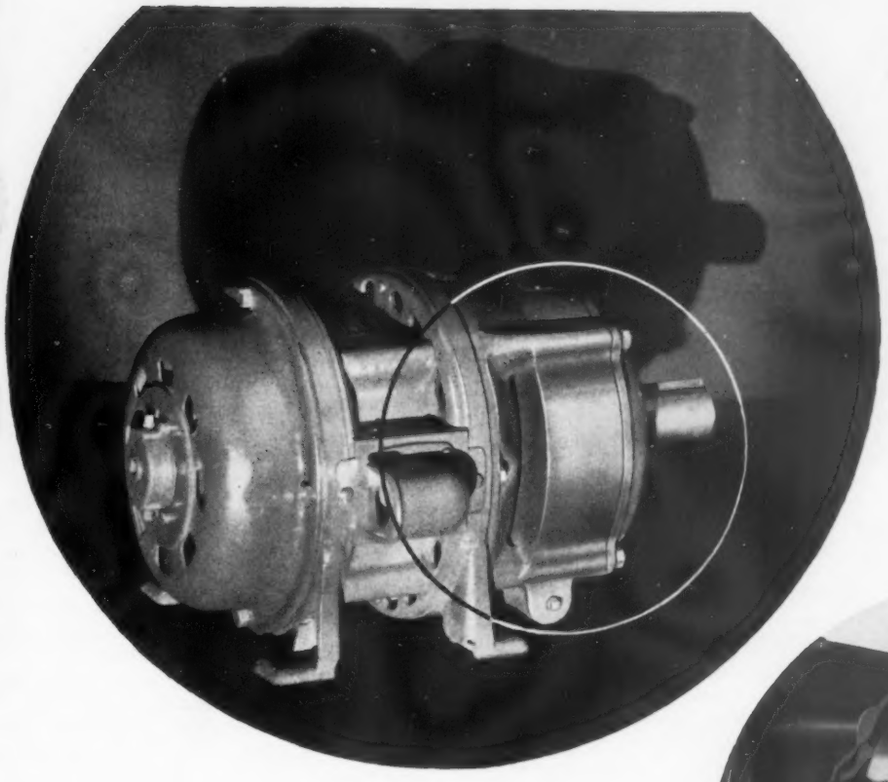
To protect the public from irresponsible and incompetent welding concerns, the Welding Contractors Association of New York Inc., 522 Fifth avenue, New York, has decided to require the qualification by test of welders employed by its members. This action climaxes a two-year study of the problem during which time all other methods of control have been found futile.

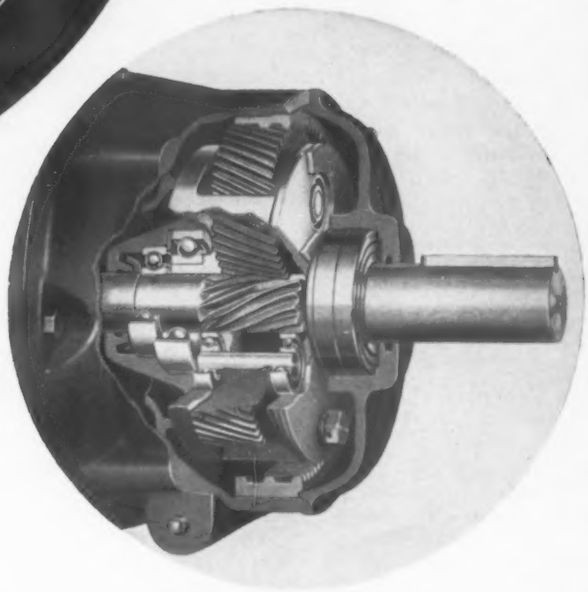
The welding public will be urged to insist on the use of qualified welders for its own protection. The association is prepared to confer with the public on matters relating to welding. Upon request names and addresses of recognized specialists in the various applications of welding will be furnished.

The more stringent requirements of the association may temporarily decrease the membership but, it is stated, the new plans already have enhanced the organization's prestige. Ultimately it is expected that membership will be expanded until the association becomes national, embracing those welding contractors of the country who can show a record of accomplishment.

G-E GEAR-MOTORS

EFFICIENT - - COMPACT - - ECONOMICAL





THE G-E GEAR-MOTOR is a combination of a motor and a speed reducer, built into a single, compact unit to deliver the desired low speed, direct at the drive shaft. It is only slightly larger than an ordinary motor and is easy to install.

The GEAR-MOTOR combines the economy of a standard, normal-speed, general-purpose motor and the efficient speed reduction of internal helical gearing running in oil. The GEAR-MOTOR delivers the full rated horsepower of the motor at the output shaft.

Information on this complete line of GEAR-MOTORS can be obtained from the nearest G-E sales office or G-E Motor Dealer, or from General Electric Company, Schenectady, New York.

STANDARD RATINGS

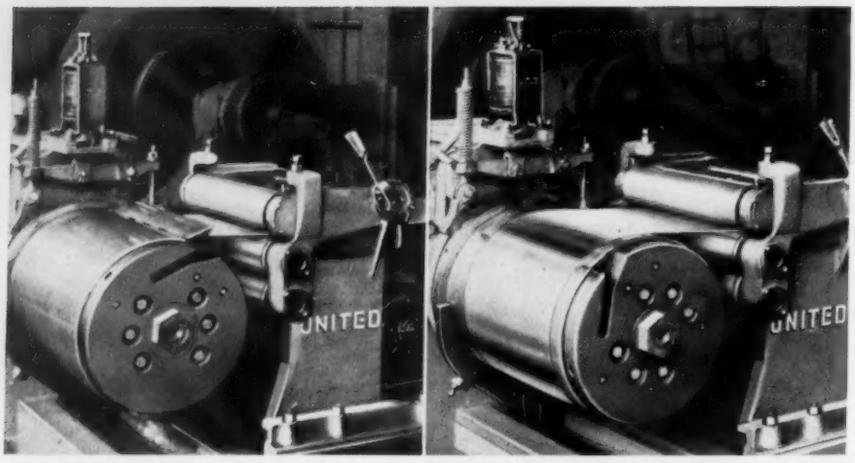
600 to 13 Rpm.
Polyphase, 3/4 to 75 hp.
Single-phase, 3/4 to 5 hp.
Direct Current, 3/4 to 7 1/2 hp.

Other speeds and horsepower ratings can be furnished on request. Mechanical modifications are available, such as flange mounting, vertical motors, etc.

Speed adjustment can be obtained by selecting a motor with the necessary electrical characteristics.

201-229

GENERAL ELECTRIC



In the illustration at the left, cold rolled strip steel is about to enter the new automatic reel guide machine; at the right, the strip is entered and coiling. The machine presents no danger to the operator and will materially reduce scrap loss on the ends

Cold Rolled Strip Steel Automatically Threaded and Coiled Under Tension

DEVELOPMENT of a machine believed destined to have an important effect on the manufacture of strip steel has been announced by United Engineering & Foundry Co., Pittsburgh. Several of these machines, known as automatic reel guides, have been given satisfactory tests over a period of several months.

The machine, shown in the accompanying illustrations, is an invention to receive cold-rolled strip as it emerges from the mill bed, to straighten it and keep it from curling or bending, to insert the end in the entry slot of the reel, to start the reel in motion, and to withdraw to allow the coil to build up.

Heretofore in cold-rolling strip steel, where tension on the strip during the rolling operation is of great importance, automatic reels have not been widely used. In nonferrous metals, where tension is not so important, there have been coilers to take strip from the mill at full speed for some years. On any wide steel strip, the end is apt to curl and twist.

Previously it was difficult to thread the strip into the reel, but this automatic machine, it is claimed, will eliminate mill holdups, and there is no danger to the operator. With a high degree of tension, scrap loss on the ends is reduced greatly.

Nickel-Iron Sponge Is Produced in Canada

Successful production of a nickel-iron sponge by direct process from Sudbury ore has been reported to the natural resources department of the Canadian National Railways by the Canadian government.

The nickel steel production from this sponge is stated to compare favorably in physical or strength tests with nickel steels of similar S.A.E. specifications made in the ordinary way. This gives rise to the hope that there are possibilities for commercial production of nickel steel direct from the nickel-copper ores of the Sudbury district of Ontario.

Canada produces approximately 87 per cent of the world's nickel. This production comes almost entirely from mines operating near Sudbury. The comparative statistics of 1930, the latest year for which all world figures are available, give Canada 51,884 net tons of nickel; New Caledonia, 5376; Norway, 965; and India, 952 tons. The total world production of nickel in 1930 was 59,360 tons; for 1931, it will be lower.

Porcelain Enamel Shingle Developed

CONSTRUCTION of the porcelain enameled steel residence in South Euclid, O., a suburb of Cleveland, the steel frame for which has just been erected, has been altered from its original conception to permit the use, instead of large porcelain enameled panels, of smaller steel shingles of the same material. The shingles will be used on both roof and exterior walls.

The residence is being promoted by the Ferro Enamel Corp., Cleveland, to establish the practicability of porcelain enamel as a material for the building industry and to aid in the development of mass production houses by actual experiment. The corporation has only recently acquired the patents for the steel shingle which is to be used.

The backing for the shingles consists of two sheets of 24-gage steel on either side of ⅜-inch thickness of celotex. This particular product of celotex and steel is known as Ferro-Clad and is manufactured by the Truscon Steel Co., Youngstown, O.

No Cutting on Job

It is fabricated and the sheets numbered at the factory so as to avoid cutting out doors, windows and other openings on the job. A steel framework to which wood nailers are bolted serves as a base for the Ferro-Clad sheets on the outside of the framework and then lath and plaster on the inside. The 4-inch space between the back of the lath and plaster and the inside of sheet will be filled with mineral wool.

The first and second floor will be bar-joist with a finish oak floor in various rooms. The ceiling of the second floor also will be bar-joist, as well as over the garage, so as to make the residence almost fire-proof.

Outside walls and roof will be in three shades of russet or brick-color on the roof and a rich buff limestone color covering the main body of the walls. Contrast will be given to the walls by using blue-green shingles four courses wide around the bottom at the foundation line and two courses of the same color just beneath the coping. A dull finish enamel will be used.

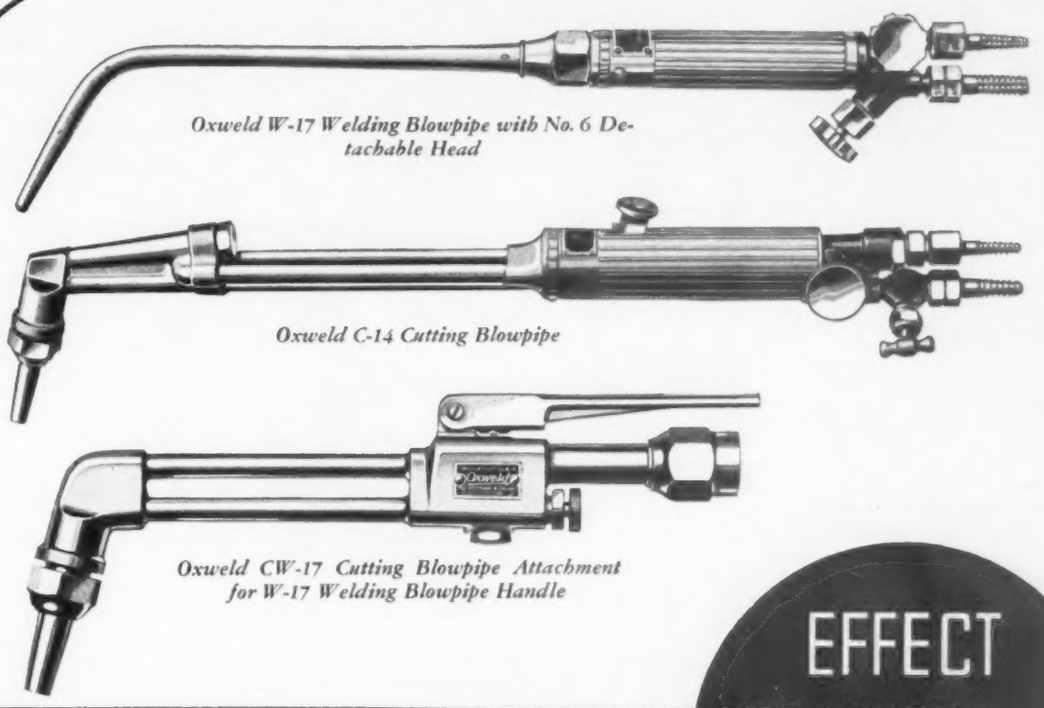
Charles Bacon Rowley & Associates, Cleveland, are the architects and engineers, and George L. Dubin, also of Cleveland, the contractor.

Receives Large Order for Chrome-Nickel Utensils

Approximately 5 tons of corrosion-resisting steel sheets, Rezistal KA2, manufactured by the Crucible Steel Co. of America, New York, will be required for cooking utensils, steam table, pans, serving trays and casseroles being fabricated by the Joseph Heinrichs Corp. at its Long Island City, N. Y., plant for the New York Hospital-Cornell Medical Center, New York. This is one of the largest orders of its kind ever placed.

More than 3000 pieces are included in the order, requiring upwards of 200 dies, the chromium-nickel steel being formed on special

SAVE MONEY



Oxweld W-17 Welding Blowpipe with No. 6 Detachable Head

Oxweld C-14 Cutting Blowpipe

Oxweld CW-17 Cutting Blowpipe Attachment for W-17 Welding Blowpipe Handle

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Denver	Minneapolis	Tulsa

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presses at the Heinrichs plant. Bulk of the sheets are 18 and 12-gage. On utensils requiring handles, noncorrosive steel rivets are used.

Following forming operations, all pieces are annealed, two furnaces being included in the equipment. The stock is brought to temperatures of 2000 to 2100 degrees Fahr. quickly, the lighter pieces being air cooled and the heavier utensils water quenched, the work being in the furnace but a few minutes. Annealing removes stresses set up in the working of the metal and returns it to its original condition, eliminating brittleness.

There is a noticeable trend toward the use of heavier sheets in the production of kitchen utensils subjected to the higher heats, assuring a better distribution of heat. This heavier stock is also being given a higher finish, especially the interior surfaces.

Deoxidizing for Cleaner Steel

RECENTLY a great deal of study has been devoted to methods for the effective deoxidation of steel, because steelmakers realize that to meet modern rigid specifications, cleaner steel must be produced. Results of these investigations indicate that silicon-manganese alloys most quickly and thoroughly eliminate nonmetallic inclusions from the bath.

Deoxidation by means of these and other alloys is discussed in detail in a new booklet issued by the Electro Metallurgical Co., 205 East Forty-second street, New York, as technical bulletin No. SM-1, entitled "Silicon-Manganese Alloys for the Deoxidation of Steel."

According to this bulletin, one of the most important factors affecting the rate of elimination of nonmetallic inclusions from steel is the size of the particles, since the rate of rise of these liquid particles is directly proportional to the square of their radius. To produce large inclusions, it is necessary that the slags which form these inclusions be fluid at steelmaking temperatures and have proper surface tension so that they may coalesce readily.

Double Deoxidation Inferior

Actual tests on a large number of open-hearth heats have shown that entirely satisfactory results cannot be obtained when manganese additions are followed by silicon, or when the deoxidizers are added in the reverse order. These methods of double deoxidation are found to be relatively inferior because the inclusions present do not tend to coalesce and rise rapidly to the surface.

The addition of deoxidizers in the form of suitable silicon-manganese alloys is said to result in the formation of ternary oxide combinations which have the desired composition and fluidity to form large inclusions. Tests on ten open-hearth heats show that particles formed on deoxidation with the proper grade of silicon-manganese alloy have a rising velocity from 1600 to 4000 times as great as particles formed when only silicon additions are made. Excellent results with a dead-killed steel are obtained with these alloys when the ratio of manganese to silicon is between 4 to 1 and 9 to 1; best results are obtained when this ratio is between 4.5 to 1 and 6 to 1.

The total effect of using these alloys, according to the bulletin, may be summarized in the statement that they make it possible to produce a cleaner steel in a shorter time and at a lower cost than by the usual methods.

Issues Specifications for Seamless Steel Tubes

Two new manufacturers' standard specifications covering seamless steel still tubes for gasoline cracking plants have just been published in booklet form by the Association of American Steel Manufacturers Technical Committees.

Specification No. 100 covers plain carbon steel and specification No. 200 covers 4.00 to 6.00 per cent chromium steel. Both specifications were adopted Feb. 5, 1932 and revised April 1, 1932.

T. Walley Williams, 616 Investment building, Pittsburgh, is recording secretary of the association and from him may be obtained copies of the specifications.

Designs Large Chandelier For Radio City Theater

A chandelier, 25 feet in diameter and the largest in the world, will be installed in the RKO Photoplay theater now being erected in New York as a unit of the Radio City side of the Rockefeller Center. Contract for the chandelier, which will weigh 6½ tons and which probably will be fabricated from sheet steel, has been awarded to Cox, Nostrand & Gunnison, Brooklyn, N. Y., the design having been worked out by Foster Gunnison, a partner in the company.

The fixture will burn 104 kilowatts of electricity in its 400 flood lights, the heat from which with their great lenses has required the design of a special ventilating system. It will be the central feature of the ceiling of the main auditorium and three months will be necessary to build it.

A cream and gold finish, harmonizing with the general decorative treatment of the ceiling, will be given by a paint specially prepared to withstand the intense heat of the flood lights. The chandelier will be too heavy and large to be lowered and special stairways will be provided in the interior to enable workmen to clean and care for it. A novel elevating system has been worked out whereby the sectional louvers can be lowered and raised so that workmen can gain entrance.

Ford Axles Press Forged, Pickled Continuously

(*Concluded from Page* 27)

the center of the pin and the flow of current from the electrode through the pin and to the forging provides sufficient heat to soften the pin. When the heating is sufficient, the current is cut off and pressure is exerted on the electrode to upset the pin in its hole.

A variety of electric resistance heating machines have been developed by Ford engineers for selective or localized hardening operations. These machines function the same as electric rivet and rod heaters well known in industry—current is passed through the given section of steel and the resistance of the steel generates the heat. Ford water pump shafts must be hardened in their central portions to resist wear in the bearings, yet must be machinable on the two ends, therefore only the middle sections are hardened. These shafts are clamped between two electrodes spaced apart so as to heat only the portion to be hardened. Current is applied for a given period of time then the shafts are removed from the machine and quenched.

Sheets Are Rolled Directly From Molten Steel

Sheets rolled direct from molten open-hearth steel are being produced on an experimental basis at a Pittsburgh district steelworks. The process, devised by C. W. Hazlett, 1058 Rockefeller building, Cleveland, for making sheet lead and copper and now being applied to steel, consists of pouring the molten metal from a reservoir into a set of driven rolls arranged in a horizontal plane. When the rough sheet is formed the original heat in the metal is used for additional passes in reducing the stock to thinner gages. The width of the rolls used is the width of the sheet.

Initial experiments with this process of sheetmaking were conducted for several months at an Ohio steelworks.

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Move it to the hottest places by overhead crane or auxiliary truck.

The NEW OSCILLATING PERKINS MAN COOLER gives you recirculation of air over an arc of oscillation adjustable from 30 to 120 degrees.

B. F. Perkins & Son, Inc.

Engineers and Manufacturers

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This Coupon will Place the Proof before You

B. F. PERKINS & SON, Inc.
Holyoke, Mass.

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Our Current is

A. C. (Voltage)_____

(Phase)____(Cycles)____

D. C. (Voltage)_____

Firm _____

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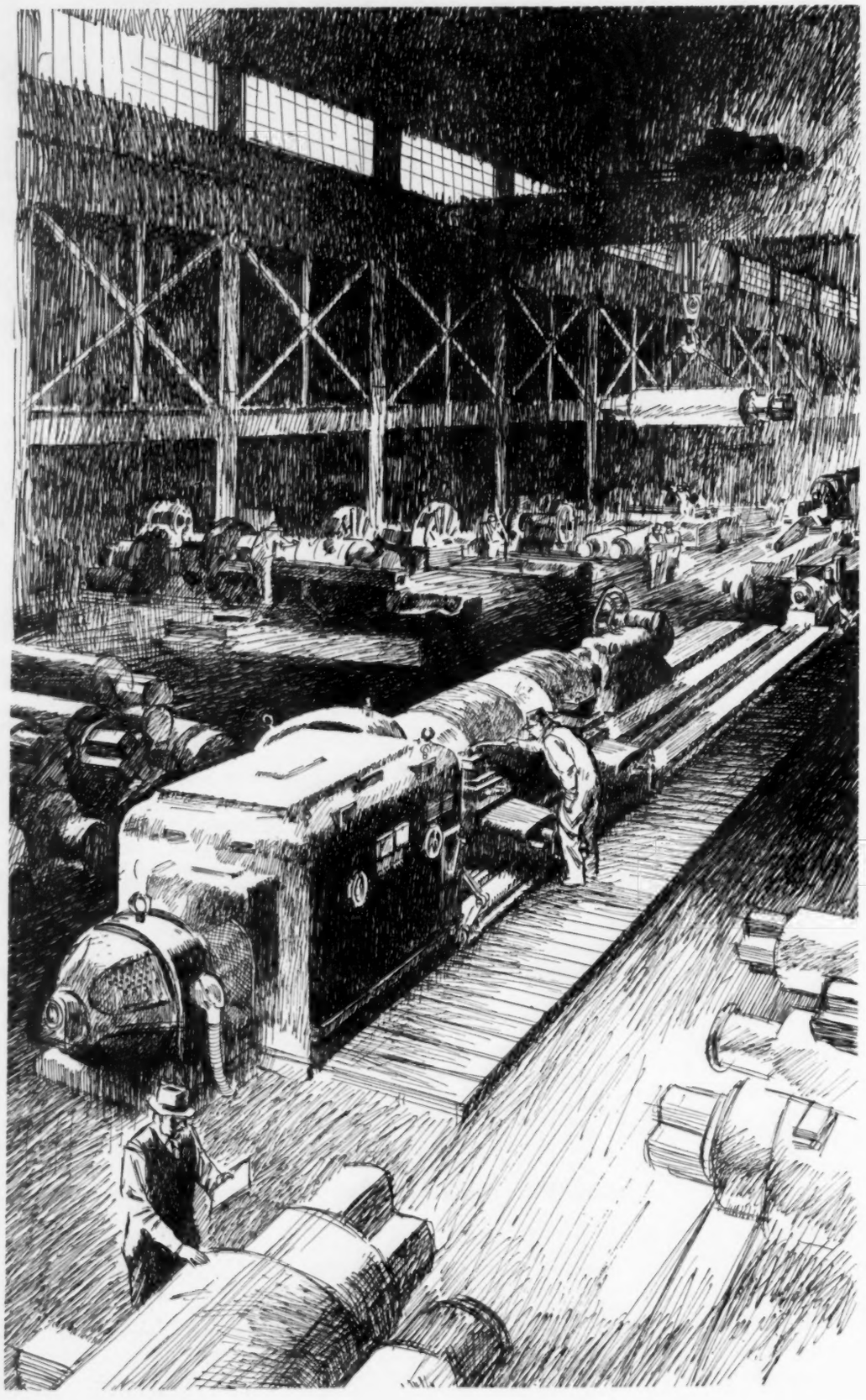
Attention of _____



© 1932 Mackintosh-Hemphill Co.

Only Here Can Certain Rolls Be Machined

Rolls so hard that grinding would be the only finishing operation possible in other plants, can be lathe-turned by Mackintosh-Hemphill.

Tolerances so small as to suggest the watch factory rather than a heavy machine shop are often imposed . . . and always conformed to.

Precision that leaves rolls accurate and concentric, whether rough cut or finished, is the invariable rule.

It is possible, of course, to equal these results. All that is necessary is to match Mackintosh-Hemphill's equipment . . . to duplicate Mackintosh-Hemphill's trained and expert staff . . . *and then to practice for 130 years.*

MACKINTOSH-HEMPHILL COMPANY

Since 1803 . . . at Pittsburgh

A copy of the machining illustration will be sent you without charge, on request. It is part of a series of ferrous industry scenes in etching style.

Making the Most of

METHODS AND MATERIALS

LUBRICATION research has reached into the development of metallic base compounds. A lubricant of this type, having a zinc base, deposits a submicroscopic coating on the working parts of machinery. Following four years development in England and in this country the new product is arousing interest of machinery builders. The deposition of the coating is explained in the light of a phenomenon by which minute electrical discharges occur between moving parts in contact. These discharges are said to set up an electrolytic action by which the film of zinc is deposited. Bearing surfaces become highly polished with the coating. The film does not continue to build up as might be expected, but remains of submicroscopical thickness. This new type of lubricant posseses considerable surface tension and its adhesive properties are notable; also its viscosity remains comparatively constant under changing temperatures.

THE welding or cutting blowpipe should never be applied to empty, old or discarded drums, barrels, tanks or other containers until the welder is certain that the vessel is thoroughly clean and vented, regardless of what he believes was in them. Thorough steaming with live steam will remove any trace of volatile liquids such as gasoline; scrubbing with lye solution will take out oily materials; probably the safest method is to flush the vessel with water thoroughly, and then keep it as full of water as possible until the welding operation is completed.

$ $ $

Galvanized structural steel has been known to fail under light stresses from a phenomenon termed "galvanized embrittlement." A recent research in this subject reveals that this embrittlement may be avoided by simple and inexpensive means. The cause was found to be principally the punching of bolt holes; no serious embrittlement is to be expected on thin and medium sized stock, but material more than ¾-inch thick may become brittle when punched. The solution is to drill or ream bolt or rivet holes in the heavier sections.

$ $ $

Clearance must be provided in the truncated triangles at crest and root of tapped holes if tight studs are to be driven successfully.

$ $ $

One manufacturer of expansion joints for high temperature steam lines is using centrifugally cast monel metal liners up to 30 inches in diameter. These liners not only protect a flexible alloy steel expansion bellows from erosion by high velocity superheated steam, but maintain alignment of the element with a rust-proof sliding fit in the end flanges.

$ $ $

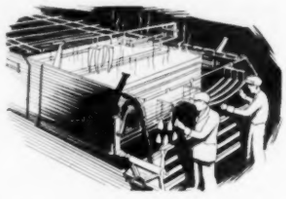
A manufacturer of roller bearings required bronze retainers of various sizes, the maximum being about 40 inches in diameter with a wall thickness of about 1½ inches. It was necessary that the material be absolutely free from gas holes, sand inclusions or other minute defects. The retainers were centrifugally cast in multiple lengths, machined and cut to size and passed inspection without question.

$ $ $

Production of nickel-clad steel plates has been so improved that now the material can be furnished varying from 12-gage to extra heavy weights. Plates as large as 96 x 330 inches are being rolled with larger in prospect. Usually the steel constitutes 90 per cent of the thickness and nickel 10 per cent. In fabrication, application usually makes it imperative that only a continuous nickel surface be exposed to the corroding medium. Otherwise an iron-nickel couple will be set up and rapid deterioration will occur. In riveting, solid nickel rivets or rivets protected by nickel should be employed. Welding is performed with nickel rods. In hot working, the serious nature of the effect of sulphur on nickel should be remembered. If the sulphur content of the gases is high, the nickel is attacked along the grain boundaries and loses its ductility.

$ $ $

One of the important factors in the service of gears today is the skin operating temperature which for heavy work may run as high as 500-600 degrees Fahr., according to the metallurgist of a gear manufacturing company. This may cause softening of the contact surface with a subsequent change in tooth contour. Breakage of teeth inevitably follows.

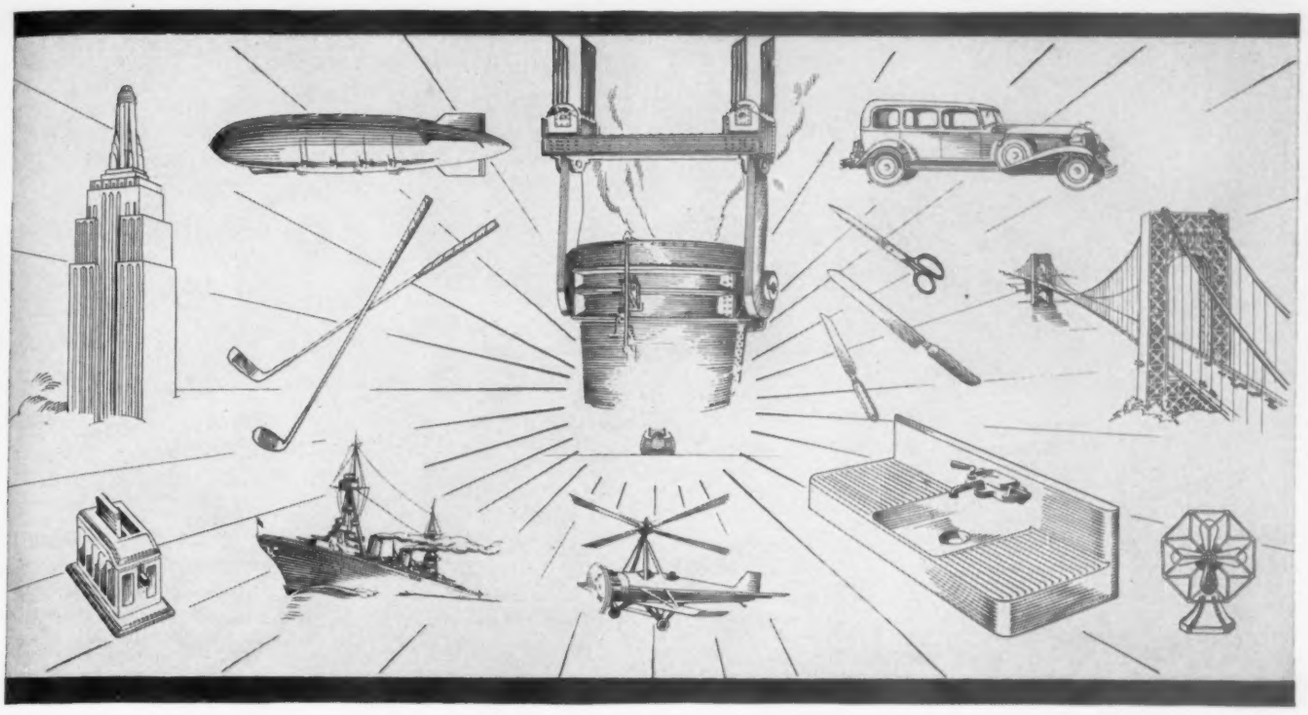


TWO element hot-cathode mercury-vapor tubes have been used to rectify alternating current to provide direct current for electroplating. There is some reason to believe that the resultant ripple in the direct-current voltage offers some advantages in plating certain materials, but the problem requires further study to prove definitely this point and to evaluate the advantages.

$ $ $

Buckling or warping of sheet metal during welding can be prevented by removing the heat from the base metal adjacent to the weld. In the case of flat seams, a heavy piece of metal such as a section of steel rail or heavy bar stock placed on either side of the seam will effectively prevent the heat from spreading too far and will also tend to prevent movement of the parts by resisting the forces of expansion and contraction.

ELECTROMET SERVICE



Eliminates Uncertainty in Selecting ALLOY STEELS

There are so many alloy steels to choose from that selecting the best to use in your equipment is not an easy matter. If you are trying now to determine which of the many alloy combinations can best meet your needs, the unique assistance that Electromet offers may be just what you are looking for:

As the pioneer producer of ferro-alloys and metals for steel makers, Electromet has available, and will furnish without charge and without bias in favor of any one composition or producer, the facts you need to insure utmost returns from your investment in alloy steel. Before you write your specifications, take advantage of this service. It may save you money and disappointment. Write today for complete information.

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It's Joe Thompson's Pet Chill . . . .

"JOE THOMPSON", long time superintendent of old 13—famed for economical productive methods, loosens up on an occasional competitive interview. A bit cocky in pride, he contributes his record monthly tonnage to well shod stands.

It seems "Joe" has a pet chill that accompanies each requisition for rolls. This particular chill, relates "Joe", must run to the required depth and be mighty uniform all 'round, 'else he falls short on his *rep*. He tells the inquisitive his roll products have been cast by Birdsboro ever since his connections with the Blank & Blank Steel Corp., and that Birdsboro's close cooperation with his requirements gives them his business.

Have you a *pet chill?*

BIRDSBORO
STEEL FOUNDRY AND MACHINE COMPANY
DESIGNERS AND BUILDERS
BIRDSBORO, PENNSYLVANIA

PROGRESS IN STEELMAKING

CONTROLLING the temperature of the tin bath within close limits is accomplished at a plant in the Chicago district by impinging the flames from a row of gas burners on a bed of broken refractory material. Heat from the incandescent refractory is radiated directly to the bottom and front side of the tin pot.

SPEED adjustment of direct-current motors in steel mill service with greater sensitivity and range than heretofore possible is the purpose of a newly developed regulator designed with a balanced voltage vibrating relay. The magnetic structure and exciting coil are stationary while moveable coils are suspended from the relay arm. By this arrangement the excitation can be varied over a wide range, thus maintaining the same sensitivity throughout a wide range of current in the moving coils.

♦ ♦ ♦

Various combinations of rolled structural members such as channels, I-beams, plates and angles, now are used for new type interlocking steel floor recently designed by a Philadelphia concern. The elements are assembled either by riveting, bolting or welding and placed over floor beams. Savings are afforded by the elimination of temporary plank flooring, wood forms and dead load per square foot of floor.

♦ ♦ ♦

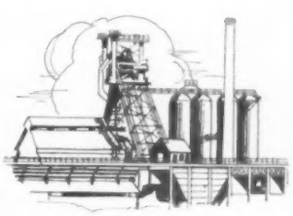
Accurate results in determining the compression, tension and bending stresses of steel are claimed for a new universal testing machine which incorporates an automatic springless pendulum counterbalancing mechanism. Touching a button starts the motor, the operator regulating the speed by turning a wheel and observing the applied pressure from a dial. The unit also includes a graphic recorder to chart the pressure trend at every stage of the test and breaking point.

♦ ♦ ♦

Development of an improved lining for steel furnaces has been announced by the bureau of standards, Washington. The new lining is made of magnesite without iron oxide or slag by using electrically sintered magnesia bonded with 20 per cent water-ground magnesia. Under severe service conditions, melting a variety of ferrous alloys from gray iron to high-speed tool steels, the bureau reports this lining has given satisfactory life.

♦ ♦ ♦

Interlocking corbel tile now is available for monolithic boiler and furnace linings. The purpose of the tile is to divide the wall into several independent sections and to transfer the weight of the various sections to the exterior brick wall. By this arrangement sections can be replaced without disturbing the lining as a whole.



ORE transfer cars equipped with air-heated hoppers are operated at a group of stacks in the Buffalo district. The hopper is built with a double lining with asbestos insulation on the exterior which prevents the ore from adhering to the slope plates in freezing weather. Heat is supplied by a small forced-circulation coal heater installed at the cab end. Heat at the highest temperature is applied to the doors and thence around the body of the car, the outlet being located at the top of the car.

RESPONSIBILITY for blue prints removed from filing cabinets at an Ohio plant is traced by a recently adopted system in which the draughtsman taking a print from the files records its withdrawal on a card and places the notation in the drawer.

♦ ♦ ♦

Joining stainless steel sheets without setting up conditions which ultimately will lead to destructive rusting is claimed for a new welding process designated "shot-welding." The process is spot welding under highly accurate current, time and pressure control. Current of 1200 amperes for stock 1/32-inch thick acts so quickly that the steel does not have time to lose chromium. The strength of the weld is claimed to be as high as the parent metal inasmuch as the finished joints will stand a 90-degree twist before separating.

♦ ♦ ♦

Based on results of numerous closely agreeing laboratory experiments and confirmed by behavior of kettles in actual practice, 864 degrees Fahr. is the critical temperature which must not be exceeded in heating galvanizing baths if the kettles are to be used for a long period without replacement.

Scanning the Field of Technology

A Digest of Important Developments Pertaining to the Production, Processing, Application and Performance of Steel

Spring Washers Meet New Requirements

By D. W. Frye, in Industrial Gas, July 1932, *p.* 19, 2½ *pp.*, 5 *illusts.*

As have many other devices, the spring washer has gone through a process of evolution, not only in its physical makeup and function, but even in name. Formerly it was termed a "nut lock" and its function was to lock the nut to prevent its turning backward. A hardened steel edge was formed on the end of the nut lock which was intended to have an indentation effect on the under surface of the nut. Less attention was centered on the importance of spring reaction. In early types the spring resistance was less than 900 pounds, in contrast with the 35,000 pounds of the modern lock or spring washer.

The washers are made from 24-foot lengths of alloy steel rods of the same cross section as the finished washer. The rods are heated, placed in a coiling machine and formed into a helix, and then sheared into separate washers. A rotary continuous hardening furnace, fired by a single gas burner at one end, receives the washers which follow through the furnace in a series of helical grooves. The washers are discharged into an automatic quenching machine and oil quenched, following which they are placed in the drawing furnace, also gas fired. The finished washers show a microstructure of evenly distributed martensite and troostite; brinell hardness of about 440.

—STEEL, 7-18-32

Dense Gear Forgings Are Machinable and Durable

By Fred W. Cederleaf and W. E. Sanders, in Metal Progress, July 1932, *p.* 19, 8*pp.*, 6 *illusts.*

After extensive study of the problem of improving machinability of gear forgings, a manufacturer in the Middle West reached the conclusion that a denser forging could be produced in all gear steels by using coarse grained steel, accurate temperature control in the forging operation and correctly designed dies. Such dense forgings anneal more uniformly and may be machined at greater feeds and speeds, even while reducing the tool costs nearly half. These machined gears respond uniformly to hardening, the change in volume being predictable. Dynamometer tests indicate an increased life of 50 per cent, marked decrease in pitting and granulations, as well as a stronger, smoother and quieter finished gear.

—STEEL, 7-18-32

Arc Welding Adapted to Variety of Construction

Bulletin No. 2, *published by Lukenweld Inc., Coatesville, Pa.*, 22 *pp.*, 88 *illusts., supplied on request.*

Progress which this company has made in the promotion and adaptation of arc welded steel construction to the manufacture of parts for machinery and equipment is becoming generally recognized. This bulletin illustrates and describes many of the machines and parts to which this type of construction has been applied successfully and profitably. The bulletin states that "arc welded steel construction gives a new freedom in engineering and design, permitting the designer to work to the actual service requirements of the structure, limited only by his own ingenuity and the tenets of sound engineering.

"It is a method of ideal flexibility, for rolled steel plates or slabs can be gas-cut to practically any required shape and size, formed in channels and many other sections, and arc welded from blueprint templates into the finished unit. Where desirable, the engineer can employ various analyses of steels in different members of machinery parts. Highly stressed members can be made of high-strength rolled alloy steels, with carbon steel in other members where it is entirely suitable and economical."

—STEEL, 7-18-32

Selection of Suitable Materials for Stampings

By J. K. Olsen, in Product Engineering, July, 1932, *p.* 295, 3 *pp.*, 2 *illusts.*

Three main items enter into the selection of stamping stock, namely, material, thickness and temper. Additional factors that should be considered are: Sheet or strip form, straight strip or coiled stock, grain direction, grain size, chemical composition, finish and heat treatment. Many of these characteristics are interrelated.

Among the common materials steel is probably a first choice, as it is inexpensive and strong. It can be obtained in tempers and thicknesses suitable for almost any form or shape and is easily heat treated. Cold-rolled strip steel is a high quality material and is used widely for formed or drawn parts, especially where the limits are close. For parts that do not have to be held to close limits in forming or bending, hot-rolled strip or sheet steel, being considerably more inexpensive than cold-rolled steel, enters the picture. Its chief limitation is that it is not rolled thinner than 0.035-inch and then only in narrow widths. Other steels used in various stamping operations include hot-rolled mild steel and various commercial grades of spring steel.

—STEEL, 7-18-32

New Alloy Cements for Hard Metal Carbides

By Dr. Colin G. Fink and G. A. Meyerson in Iron Age, July 7, *p.* 8, 2½ *pp.*, 4 *illusts.*

The authors conducted an investigation to find a manner of reducing the brittleness, without sacrifice in hardness, of the cobalt-tungsten carbide and similar alloys now so widely used for the bearings of drawing dies and as cutting edges for lathe and other tools. Their experiments indicate that the proper selection of the binding or cementing material for the carbide is of prime importance and that the substitution of a hard, tough alloy, such as cobalt-tungsten, cobalt-carbon-tungsten, or cobalt-molybdenum, in place of cobalt alone, results in a carbide alloy which is not only a tougher but even a harder product.

It was found that an alloy composed of 94.75 per cent tungsten carbide and 5.25 per cent cobalt in which the cementing material was an alloy of cobalt, tungsten and carbide, resulted in a finished alloy that was unusually tough and had a hardness of 87.3 on the Rockwell "A" scale. Details of recommended methods for preparing the new alloys are presented.

—STEEL, 7-18-32

MAINTAINED *between* TOOL GRINDS

Sunoco will protect the finished work from rust and corrosion, is perfect in its emulsion; will not separate. It is hygienic and will not become rancid after prolonged use.

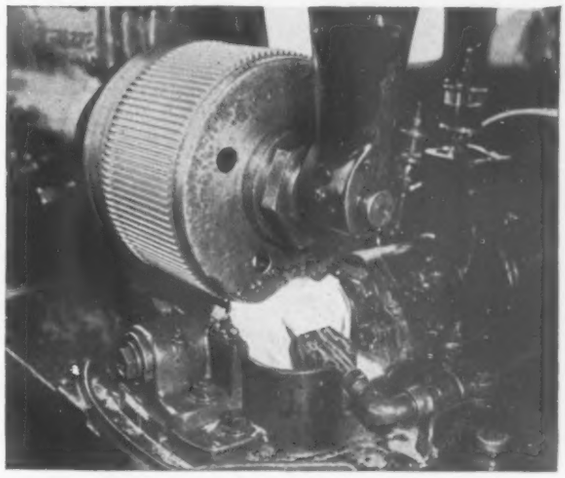
These are the reasons why leaders in the metal cutting industry recognize the value of Sunoco in producing better work at increased output per machine unit.

The Sun Oil Company offers assistance in solving individual metal cutting problems through the services of Cutting Oil Engineers who have had wide experience in the study of cutting oils and their application.

Write any of our many branches, or to our home office.

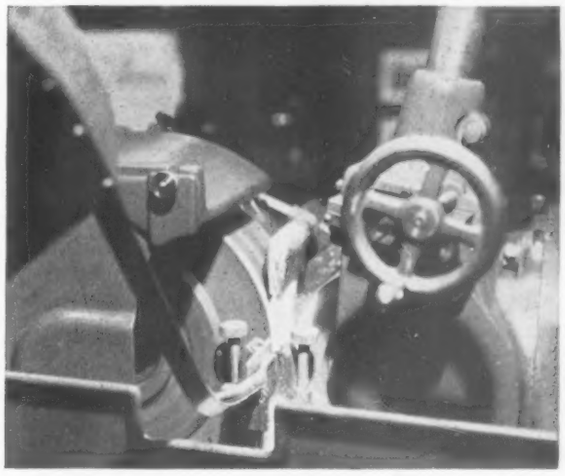
The Sun Oil Company produces a type of cutting oil to meet every metal cutting requirement.

Courtesy of The Springfield Manufacturing Company, Springfield, Ohio



OPERATION: HOBBING "EXCELSIOR" FLYWHEEL STARTER GEARS.
MACHINE: BROWN & SHARPE NO. 34 HOBBING MACHINE.
MATERIAL: .50-60 CARBON STEEL.
GEAR: 8-10 PITCH .225 IN. DEEP.
CUTTER SPEED: 120 R.P.M.
FEED: .090 IN. PER REVOLUTION OF WORK.
LUBRICANT: 1 PART SUNOCO TO 10 PARTS WATER.

Courtesy of Cincinnati Grinders, Inc., Cincinnati, Ohio



PART NAME: PISTON PIN.
MACHINE: CINCINNATI CENTERLESS GRINDER.
MATERIAL: HARDENED STEEL.
LIMITS:
ROUND WITHIN . . . . .00005 IN.
STRAIGHT . . . . . .00005 IN.
SIZE . . . . . .0001 IN.
STOCK REMOVED: .001 IN.
PRODUCTION RATE: 28 PER MINUTE.
LUBRICANT: 1 PART SUNOCO TO 40 PARTS WATER.

SUN OIL COMPANY, Ltd., Montreal, Canada.

OCO
CUTTING OIL
of BLUE SUNOCO MOTOR FUEL

mont, Bridgeport, Buffalo, Chicago, Cincinnati, Cleveland, Columbus, Jacksonville, Miami, Montreal, Newark, New York, Philadelphia, Pittscuse, Tampa, Toledo, Toronto, Trenton, Tulsa, Wilmington, Youngstown.

NEW EQUIPMENT

PRODUCTION FABRICATION TREATMENT FINISHING

Loading Device Combines Machines as Unit

Seneca Falls Machine Co., Seneca Falls, N. Y., recently developed an automatic loading device to be employed in connection with standard machines as depicted in the accompanying illustration. In this particular case rough forgings are placed on the conveyor, shown at left, which carries the work to the centering machine. The centered forging then is picked up by fingers and carried to the rough turning machine where it is placed between centers ready for processing. Simultaneous with this operation another set of fingers picks up the forging which has been rough turned and places it in the finish turning machine, as still another set of fingers carries the finished turned piece and delivers it to a chute.

Various movements of the loading mechanism are obtained hydraulically, there being a cylinder and piston for providing longitudinal or transverse movement and cylinders for raising and lowering the gripper fingers. Tailstock spindles also are operated hydraulically. Electric switches actuate solenoid valves, and the control is so arranged that the completion of one movement starts the next.

◆

Introduces Electrode for Welding Stainless Steels

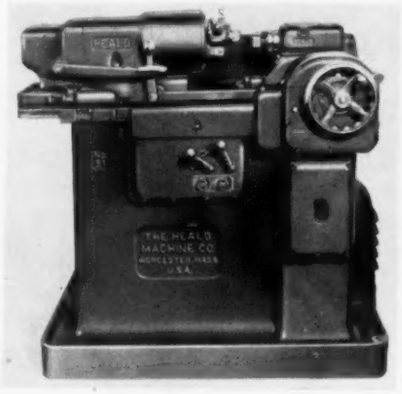
Joseph T. Ryerson & Son Inc., Chicago, has introduced a new welding electrode which is applicable to Allegheny metal and other stainless steels in the 18-8 chrome nickel group. Chiefly responsible for its performance is the special flux coating that produces a nonactive gas which surrounds the hot metal and prevents the oxygen of the air from attacking the metal and forming oxides. The heavy slag formed on top of the weld acts as a protective agent as the metal cools.

When welding with the improved electrode it is unnecessary to remove the slag before the next bead is laid down, it is claimed.

◆

Internal Grinder Employs Hydraulic Drive

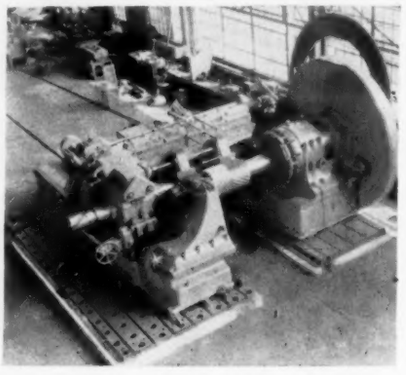
Heald Machine Co., Worcester, Mass., is manufacturing a new small size internal grinding machine to handle a variety of small parts. Particular attention has been given to a complete guarding and enclosing of units, mechanisms and belts. The work is unusually well guarded against splash and leakage of coolant, the table dogs covered and the cross slide feeding mechanism enclosed completely and run in oil. Built-in motor and electrical controls also are features, as is also a self-contained water tank located within the size limits of the base.



Heald internal grinding machine handles small work of various types

The new unit, shown herewith, has an improved hydraulic drive for the table with all controls and adjustments for setting up made from the front of the machine within easy reach of the operator. Reverse valve and cylinder which drive the table are one unit, simplifying the piping materially.

Design of the workhead is such that it travels wtih and is mounted on a swivel circle on the table.



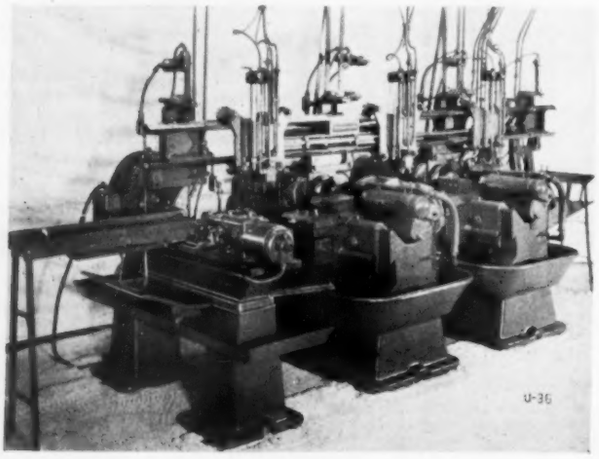
Farrel-Sykes gear generating machine cuts gears 22 feet in diameter

◆

Generator Cuts Gears Up to 22 Feet Diameter

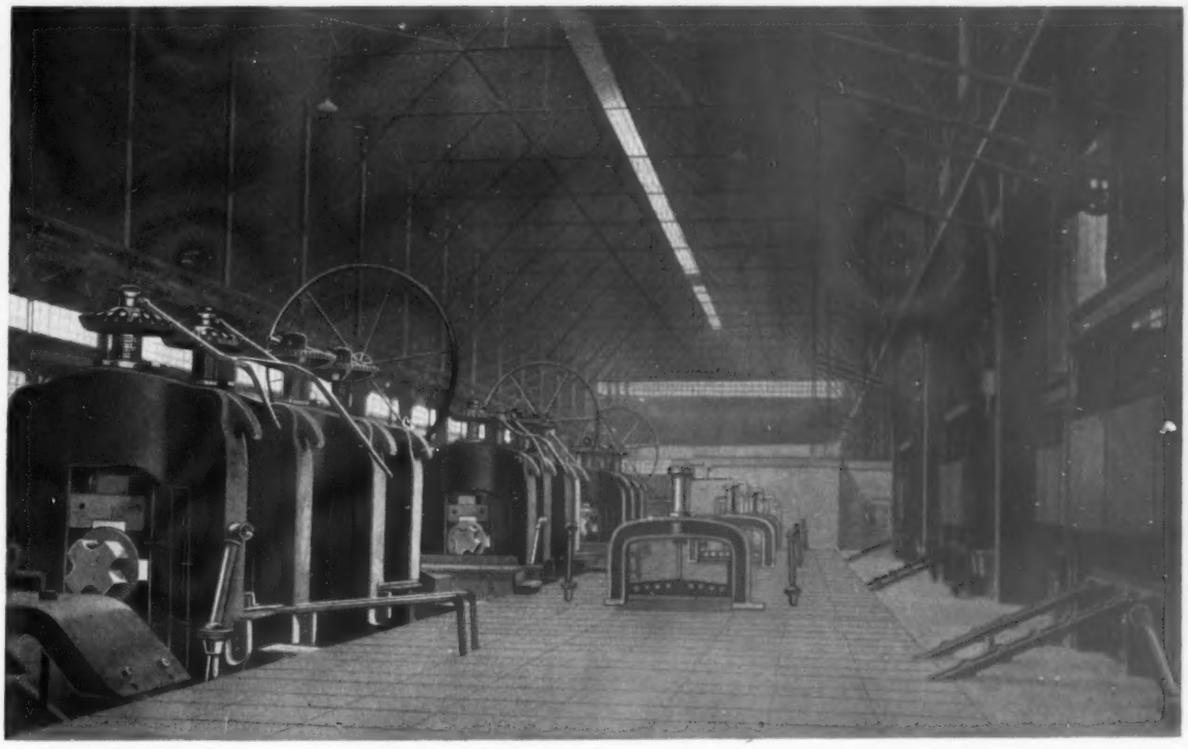
Farrel-Birmingham Co., Buffalo division, recently developed a gear generating machine which will cut spur, single helical and double helical gears as large as 22 feet diameter with 60 inches face width, and as small as 3 inches diameter. Reputed to be among the world's largest and most modern designs of gear generator, one unit recently was installed at Youngstown, O., works of United Engineering & Foundry Co.

The machine will produce the well-known Sykes gear, completing United Engineering & Foundry company's equipment for producing any type of gear used in the rolling mill industry. Its installation is of particular interest to users of cold mill equipment. All gear drives for cold mills will be



THREE standard machines are combined as a single unit to afford continuous production by a new automatic loading device developed by Seneca Falls Machine Co. Closing of fingers on the work makes a contact which actuates the tailstock spindle, withdrawing the center from the work

"NATIONAL" ROLL



BAIRD WATER COOLED FLOORS

ROLLING MILL MACHINERY

PLAIN CHILLED ROLLS
SPECIAL CHILLED ROLLS
COLD ROLLS
SAND ROLLS

ROLLS

EXTRA HARD ROLLS
FOR
BRASS
COPPER
ALUMINUM

THE NATIONAL ROLL & FOUNDRY COMPANY
Office and Works: AVONMORE, PA., U. S. A.

fitted with this precision generated type of gear, thus insuring uniform motion of the rolls and eliminating the possibility of chatter marks on the strip.

Although adapted primarily for cutting herringbone gears used in the steel industry, it is equally suitable for cutting turbine reduction gears of sizes used in marine propulsion. Maximum weight of wheel the unit is designed to handle is 50 tons. Length of stroke of the machine shown in the illustration on page 46, is adjustable to anything from zero to 32 inches. Position of the heads carrying the cutters is adjustable within a wide range and after adjustment these heads are locked rigidly to the reciprocating carriage.

KEYSTONE power shovel and crane is shown equipped with an 18-foot standard shovel boom and 1-yard dipper bucket. The weight of the unit so equipped is approximately 74,000 pounds. An 82-horsepower engine provides the power

◆

Flexibility Characterizes Power Shovel

Keystone Driller Co., Beaver Falls, Pa., recently placed on the market a power shovel and crane shown in the illustration herewith equipped with an 18-foot standard shovel boom and 1-yard dipper bucket. The unit, featured by extreme flexibility, has a capacity of 1 yard and is equally usable as a standard shovel, a skimmer machine, pullscoop ditching outfit, and crane with clamshell. By the employment of large V-type friction wheels in the main drum and planetary gearing it is possible to obtain an unusual variability in control of line speed; in fact the operator is able to use any line speed up to 120 feet per minute for the skimmer, standard shovel and pullscoop, and 160 feet per minute for crane operation.

Embodying the same principle of design into the planetary sluing mechanism, it has been found possible to give the machine any desired sluing speed from zero to 5¼ revolutions per minute. The six types of buckets or utilities available require only three different booms. An exceptional preciseness of control of line speeds and sluing movement makes the machine exceptionally well adapted for handling structural steel in erection of buildings, bridges, etc. In the form of a crawler mounted crane it is expected that the new unit will find ready acceptance in the steel industry.

◆

Gearmotors Adaptable to Wide Variety of Applications

General Electric Co., Schenectady, N. Y., recently introduced a complete line of gearmotors which are readily adaptable for application to machinery of widely varying designs. The underlying principle of these units consists of a normal speed motor in combination with a built-in, internal helical, planetary gear speed reducer. Since this type of construction permits a wide choice of speeds on the output shaft, it is possible to adapt a gearmotor to almost every type of low speed drive.

The company offers gearmotors with special electrical characteristics, such as high starting torque with low starting current, adjustable, varying speed, multispeed, etc., or mechanical features such as totally enclosed; totally enclosed, fan cooled; or Class 1, Group D, construction for use in hazardous locations where gas is present.

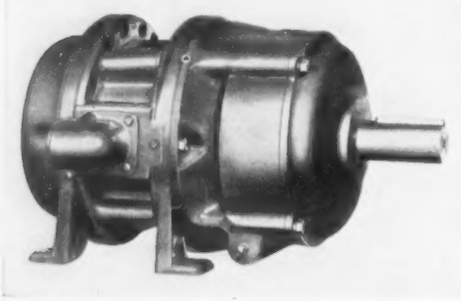
Alternating current, polyphase, squirrel cage and wound rotor gearmotors are available in ratings up to 75 horsepower, single phase to 5 horsepower, and direct current to 7½ horsepower. Direct current gearmotors are offered for those applications where either the advantages of adjustable speed drive or a direct current source of supply render their use desirable. Standard gearmotors can be had with shaft speeds down to 13 revolutions per minute.

◆

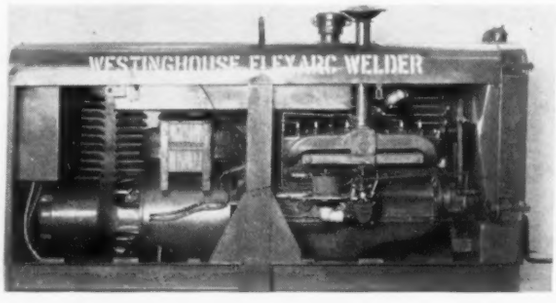
New Electric Welders Embody Distinctive Features

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has announced its new 300 and 4000-ampere gas engine driven welders embodying features which include: Full canopy protection from weather, accessible controls, dependable power, and transformer type reactance to prevent current surges and electrode sticking.

Standard units are equipped with large 6-inch rim steel tired wheels. Smaller shop type wheels can be furnished when desired, also pneumatic and solid rubber tired wheels can be supplied. Overside exciters can be provided to operate small portable tools such as drills, grinders, buffers, lights, etc. A 300-ampere welder with sides removed, disclosing the general assembly, is shown in the accompanying illustration.



Left—General Electric gearmotor which consists of a normal speed motor and a built-in speed reducer



Right — Westinghouse 300-ampere welder with sides removed to show general assembly

285

Distributors NOW Carry Reading Puddled Iron Pipe in 171 Cities

EVIDENCE of the swing back to genuine Puddled Iron Pipe is shown by the widespread list of distributors who now stock the pipe that made iron famous. Day by day, new names are added to the list as the call for pipe of High Quality and Fair Price grows greater. When you need time-defying, corrosion and fatigue resisting pipe for a job that requires freedom from pipe troubles, you'll find a stock of Reading Puddled Iron Pipe near you. If you do not know the names of your nearest Reading Pipe dealers, write us. There's no obligation, and the information may save you time some day.

READING IRON COMPANY
Philadelphia

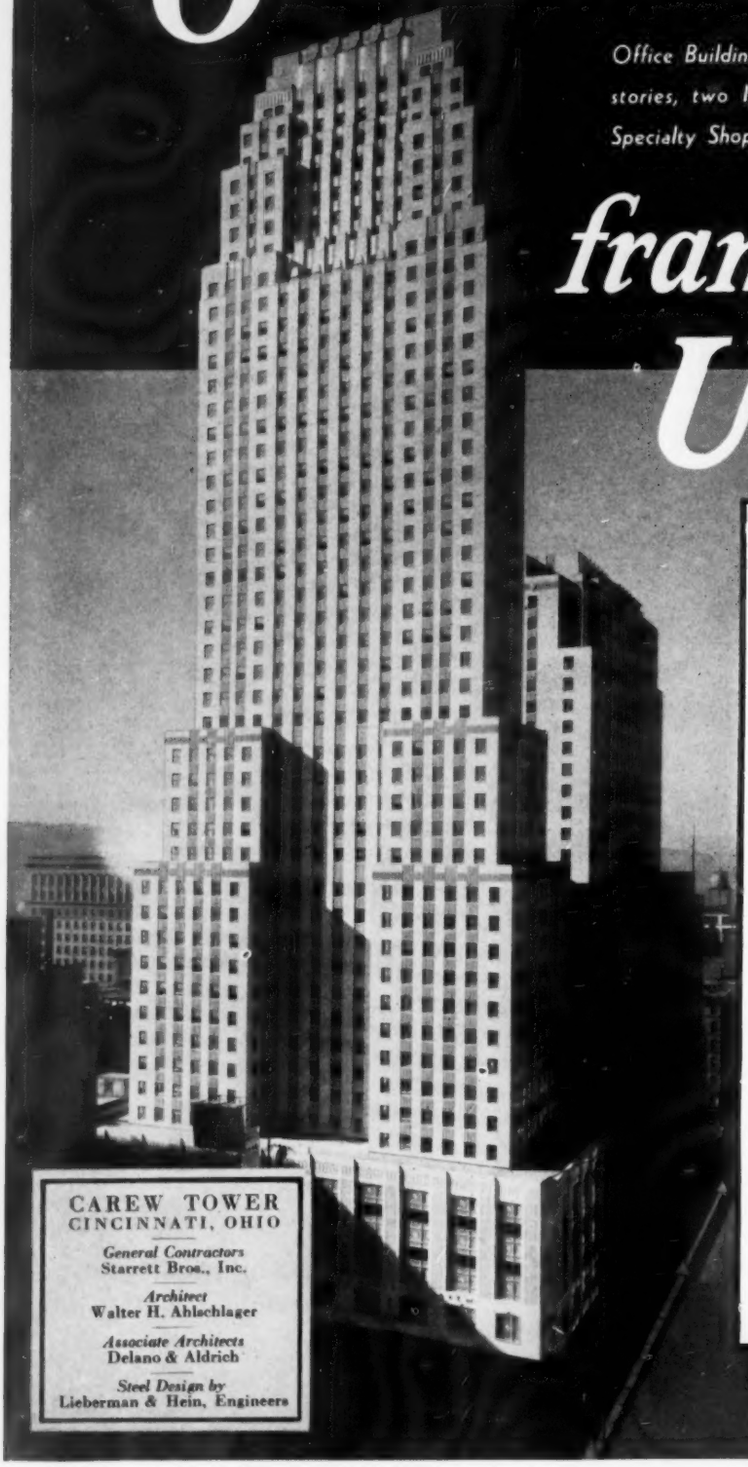
READING PIPE
PUDDLED IRON
Since 1836

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Iron

A Great Architectural Group

Office Building of 46 stories, Modern Hotel of 28 stories, two large Department Stores, sundry fine Specialty Shops, capacious 25-story Parking Garage

framed as a UNITY



CAREW TOWER
CINCINNATI, OHIO

General Contractors
Starrett Bros., Inc.

Architect
Walter H. Ahlschlager

Associate Architects
Delano & Aldrich

Steel Design by
Lieberman & Hein, Engineers

THE splendid Carew Tower group in Cincinnati, covering a ground area approximately 200 feet by 400 feet, represents that rare type of modern planning which concentrates varied facilities into one utilitarian center.

The Carew Tower, the Netherland Plaza Hotel and the Carew Parking Garage constitute the three principal units of this impressive group; each unit distinctive and complete in itself, yet contributing its measure to the esthetic proportion and architectural treatment of the whole.

Strength, rigidity and permanence are assured by the frame work of structural steel, which was furnished and fabricated by the

AMERICAN BRIDGE COMPANY
FABRICATORS AND ERECTORS OF STEEL STRUCTURES

AMERICAN BRIDGE COMPANY

General Offices: Frick Building, Pittsburgh, Pa.

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

Contracting Offices: Baltimore, Boston, Chicago, Cincinnati, Cleveland, Denver, Detroit, Duluth, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Salt Lake City.

Pacific Coast Distributors: COLUMBIA STEEL COMPANY, San Francisco, Los Angeles, Portland, Seattle.
Export Distributors: UNITED STATES STEEL PRODUCTS COMPANY, New York, N. Y.

Begin Looking to Mild Improvement in Fall

Producers Appraise July as Cleanup Month—Rural Buying Power Gaining—Standard Seeks 8000 Tons Pipe—More Favorable Factors

DUE more to an accumulation of orders resulting from prolongation of the July 4 holiday than to any improvement in underlying demand, production of steel in the week ended July 16 rose four points to 15-16 per cent, regaining the June average of activity.

This being the off week in staggered schedules at Buffalo and some capacity being dropped at Birmingham, the steel rate for the week ended July 23 may recede to 15 per cent. For both pig iron and steel ingots July will turn in a total smaller than June, thereby setting a new low for over three decades.

While most primary capacity taken off early in July has been restored, some finishing mills —especially sheets—remain idle and a few are down indefinitely. A number of users are taking in no steel this month, being closed or working off inventories entirely. Some primary producers have embargoed raw materials.

July thus has the earmarks of being a cleanup month, and consumers will come up to August more nearly stripped of supplies than at any time in recent history. In the depression of 1921, July was the low month. Current output of about 20,000 tons of pig iron and 30,000 tons of ingots daily patently is absurdly low.

For these reasons, and with more hope than proof, producers believe they are approaching a turn. August normally is a month from which little is expected, but after Labor Day some quickening is regarded as inevitable, if for no other reason that a new harvest will be coming in and farmers will glean a new money crop.

Each week recently has seen the improved market for livestock generating buying power in territory tributary to Chicago, lifting hopes for fall business in wire, implements and other lines. It is not believed that the railroads can handle fall crops or go into another winter without some work on their rights of way and equipment. After Labor Day, a number of automobile manufacturers will be releasing steel for new models.

Scattered developments of the past week are insufficient to change the present situation but are encouraging for the long pull. Mahoning valley sheet and strip mills have sustained demand for semifinished steel better than expected in July. The market for galvanized sheets is broader. Some pipe mills at Pittsburgh note better demand for small sizes in rural districts. Bar sales at Cleveland are a little ahead of June. Cast pipe orders are more numerous in the East. Tin plate output holds surprisingly well to 50 per cent.

Save for definite award of the Hoover dam plate contract to the Babcock & Wilcox Co., meaning about 52,000 tons will be rolled at Gary, and an inquiry by Standard Oil of New Jersey for 8000 tons of 20-inch steel pipe for a Pennsylvania line, tonnage business has been restricted to structurals. Including 5000 tons for the Minneapolis postoffice, the week's awards totaled 14,451 tons, about the weekly average for the year to date.

Self-liquidating and public projects for which the emergency relief act provides financing eventually will require several hundred thousand tons of structurals but this is not an immediate prospect. Last minute efforts to bar foreign steel from this work failed, but public opinion is expected to divert this business to domestic mills. The 14,000 to 17,000 tons for the Thirtieth street postoffice, Philadelphia, is maturing, as are projects at New York involving 50,000 tons.

A reduction in basic pig iron at Philadelphia lowers the iron and steel composite of STEEL 2 cents to $29.46. A little more shading has developed in heavy finished steel and sheets continue weak, but not sufficiently so to change the finished steel composite at $47.71. Scrap continues to toboggan and is off 12 cents to $5.96.

Composite Market Averages

	July 16	July 9	One Month Ago June, 1932	Three Months Ago April, 1932	One Year Ago July, 1931	Ten Years Ago July, 1922
Iron and steel Composite	$29.46	$29.48	$29.54	$29.75	$31.05	$37.50
Finished Steel Composite	47.71	47.71	47.64	47.62	48.68	53.74
Steelworks Scrap Composite	5.96	6.08	6.62	7.76	8.70	14.87

Iron and Steel Composite:—Pig iron billets, slabs, sheet bars, wire rods, pipe, tin plate, nails, sheets, plates, shapes, bars. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	July 16, 1932	June 1932	April 1932	July 1931
PIG IRON				
Bessemer, del., Pittsburgh	$15.76	15.95	16.76	18.26
Basic, valley	14.00	14.50	15.00	17.00
Basic, eastern, del., eastern Pa.	14.00	14.50	15.00	16.75
No. 2 foundry, del. Pittsburgh	15.76	16.01	16.26	18.26
No. 2 foundry, Chicago	15.50	16.00	16.00	17.50
*Southern No. 2, Birmingham	11.00	11.00	11.00	12.00
**No. 2X, Virginia furnace	18.00	18.00	18.00	18.00
**No. 2X, Eastern del. Phila.	14.76	14.76	15.66	17.51
Malleable, valley	14.50	14.50	15.50	17.00
Malleable, Chicago	15.50	16.00	16.00	17.50
Lake Superior, charcoal, del. Chi.	23.04	23.04	23.04	27.04
Gray forge, del. Pittsburgh	15.63	15.63	16.13	17.63
Ferromanganese, del. Pittsburgh	73.24	74.99	80.24	89.79

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

COKE				
Connellsvile, furnace, ovens	2.00	2.00	2.25	2.40
Connellsville foundry, ovens	3.00	3.00	3.25	3.25
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	26.00	26.00	26.00	29.00
Sheet bars, open-hearth, Pitts.	26.00	26.00	26.00	29.00
Billets, open-hearth, Pittsburgh	26.00	26.00	27.00	29.00
Wire rods, Pittsburgh	37.00	37.00	37.00	35.00

	July 16, 1932	June 1932	April 1932	July 1931
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.60
Steel bars, Chicago	1.70	1.70	1.70	1.70
Steel bars, Philadelphia	1.91	1.91	1.91	1.89
Iron bars, Chicago	1.65	1.65	1.70	1.70
Shapes, Pittsburgh	1.60	1.60	1.60	1.60
Shapes, Philadelphia	1.75	1.75	1.75	1.76
Shapes, Chicago	1.70	1.70	1.70	1.70
Tank plates, Pittsburgh	1.60	1.60	1.60	1.60
Tank plates, Philadelphia	1.79½	1.79½	1.79½	1.80½
Tank plates, Chicago	1.70	1.70	1.70	1.70
Sheets, No. 10 blue anneal,, Pitts.	1.70	1.70	1.70	1.85
†Sheets, No. 24, hot, ann., Pitts.	2.20	2.20	2.20	2.40
Sheets, No. 24, galvan., Pitts.	2.85	2.85	2.85	2.90
Sheets, No. 10 blue anneal., Chi.	1.85	1.85	1.85	2.00
†Sheets, No. 24, hot ann., Chi.	2.35	2.35	2.35	2.55
Sheets, No. 24 galvan., Chi.	3.00	3.00	3.00	3.00
Plain wire, Pittsburgh	2.20	2.20	2.20	2.20
Wire nails, Pittsburgh	1.95	1.95	1.95	1.85
Tin plate, per base box, Pitts.	4.75	4.75	4.75	5.00

†Comparisons are with old classification No. 24 black sheets.

SCRAP				
Heavy melting steel, Pitts.	$8.25	9.00	10.20	10.50
Heavy melting steel, eastern Pa.	6.25	6.25	7.20	8.55
Heavy melting steel, Chicago	4.75	5.60	6.55	8.50
No. 1 wrought, eastern Pa.	6.25	6.25	9.50	9.75
No. 1 wrought, Chicago	4.25	4.75	5.85	8.25
Rails for rolling, Chicago	6.75	7.75	8.90	10.50

Sheets

Valley Operations Better Than Anticipated—Makers Encouraged by Sustained Small Orders

SHEET PRICES, PAGE 53

Youngstown, O.—Sheetmakers in this district are agreeably surprised to find that automotive consumption is not declining so fast as they expected. Chevrolet will produce 2000 more cars this month than scheduled originally. The new Essex line is out competing in the low-price field.

Reinforced by slightly wider demand from miscellaneous sources, mill operations at important plants are at substantially better rates than anticipated. Two makers of autobody sheets resumed rolling July 14 on an accumulation of specifications. Makers of common grades, such as black and galvanized, are doing even better, operations being more regular than in the latter part of June. Demand for galvanized sheets has picked up. Quotations on all grades are steady, black and galvanized being firmer.

New York—Sheet prices are firm although untested. Building construction continues negligible and this field consumes possibly 60 to 70 per cent of the sheets sold in this district. One northern New Jersey tube manufacturer has closed temporarily. Sheet demand for refrigerator manufacture also is lagging, with one eastern interest closing its refrigerator department for the duration of the summer, it is said.

Bids close July 25 on 9100 finished automobile tags for Panama, each to be of No. 26 gage sheets, 13¾ x 6 inches, embossed with figures and letters and punched.

Philadelphia—More sheet mills are closing down throughout the country for longer than the period usually allowed for seasonal shutdowns, according to reports here. One eastern sheet mill is down indefinitely, at least two in the Pittsburgh and Ohio districts are reported down, with a third scheduled to close Aug. 1 for at least one month.

Bethlehem Steel Export Corp. has been awarded 10,000 galvanized corrugated steel roofing sheets for Panama at $6654, delivered; bids June 30.

Buffalo—Demand for sheets is slightly better than earlier in the month. District producers are operating at about 25 per cent and probably will continue at or near that level for the remainder of the month.

Pittsburgh—Restricted sheet mill operations were in keeping with depressed orders last week. The absence of inquiry of any note also is a discouraging feature. Ford Motor Co. releases are quieter, but there is considerable prospective work in the market for tanks and drums which may materialize over the next six months. The price situation is not a subject for controversy among the consuming trade, but prices continue irregular and weak at quoted levels.

Cleveland—Sheet sellers are somewhat encouraged by the fact market conditions have grown no worse with July. In automotive work, Fisher Body Co. here is working three to four days a week, producing 30,000 to 40,000 bodies a month. Demand from refrigerator manufacturers is fairly well sustained; the barrel trade and furniture lines are greatly restricted. Early requirements may develop from stove manufacturers, who are preparing for national shows.

Cincinnati—Sheet mills in this district remain on a restricted production schedule, individual orders being lighter. Demand for road building materials is below normal.

Chicago—Sheet business is slow to recover from the general inactivity early in July. Specifications include only small lots and mill operations average slightly above 10 per cent. Prices are fairly steady.

Birmingham, Ala.—Sheet mills are doing fairly well, the past week developing greater production than for some time. Gulf States Steel Co.'s mills at Gadsden, Ala., are operating intermittently.

Current Finished Steel Prices

Delivered prices subject to freight surcharge corrected to nearest ½c. Asterisk denotes price change this week

Steel Sheets

HOT ROLLED No. 10
(24 to 48 inches wide)

Pittsburgh, base	1.55c
Gary, Ind. Harbor, base	1.65c
Chicago, del.	1.70c
New York, del.	1.90c
Birmingham, base	1.70c
Philadelphia, del.	1.86c

BLUE ANNEALED NO. 9-10

Pittsburgh, base	1.70c
Chicago, district mills	1.80c
Chicago, delivered	1.85c
Philadelphia, del.	2.01c
New York, del.	2.05c
St. Louis, delivered	2.07½c
Birmingham	1.85c
San Francisco c.i.f.	2.32½c

HOT ROLLED ANNEALED NO. 24

Pittsburgh, base	2.20c
Gary, Ind. Harbor, base	2.30c
Chicago, del.	2.35c
New York, del.	2.55c
Philadelphia, del.	2.51c
Birmingham, base	2.35c
St. Louis, del.	2.57½c
San Francisco, c.i.f.	2.85c

GALVANIZED NO. 24

Pittsburgh, base	2.85c
Gary, Ind. Harbor, base	2.95c
Chicago, del.	3.00c
Philadelphia, del.	3.16c
Birmingham, base	3.00c
St. Louis, del.	3.22½c
San Francisco, c.i.f	3.50c

AUTOMOBILE NO. 20

Pittsburgh, base	2.80c to 2.90c

FURNITURE

Pitts., No. 10 heavy	2.55c
Pitts., No. 20 light	3.15c

TIN MILL BLACK NO. 28

Pittsburgh, base	2.40c to 2.50c
Gary, base	2.50c to 2.60c
St. Louis, del.	2.77½c to 2.82½c

HEAVY COLD ROLLED NO. 10

Pittsburgh, base	2.25c
Gary, Ind. Harbor, base	2.35c
Chicago, del.	2.40c
Philadelphia, del.	2.56c
New York, del.	2.60c
St. Louis, del.	2.62½c

COLD ROLLED NO. 20

Pittsburgh, base	2.75c
Gary, Ind. Harbor, base	2.85c
Chicago, del.	2.90c
Philadelphia, del.	3.06c
New York, del.	3.10c
St. Louis, del.	3.12½c

TIN AND TERNE PLATE
Per 100-pound box, Pittsburgh

Tin plate, coke base	$4.75
Long ternes, 24, unassort	3.00c

Gary, Ind., base 10 cents higher

Wire Products

(Prices apply on straight carloads. Mixed and joint carloads take 10 cents higher price; pool carloads 25-cent advance; less carloads 40-cent advance.)
F.o.b. mills, 100 lb. keg

Standard wire nails	$1.95
Cement coated nails	1.95
Galvanized nails	3.95

(Per pound)

Polished staples	2.50c
Galvanized staples	2.75c
Barbed wire, gal.	2.60c
Annealed fence wire	2.35c
Galvanized wire	2.80c
Woven wire fencing, (9-11 ga.)	$55.00
(12½ ga. and lighter)	$60.00

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Chicago and Anderson, Ind., $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher: Fairfield, Ala., $3 higher.

Steel Plates

Pittsburgh, base	1.60c
Philadelphia, del.	1.79½c
New York, delivered	1.90c
Boston, delivered	2.02c
Buffalo, del.	1.85½c
Chicago, base	1.70c
Cleveland, del.	1.78½c
Birmingham, Ala., base	1.75c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f.	2.00c
St. Louis, del.	1.97½c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, del.	1.75c
New York, del.	1.87c
Boston, del.	2.00½c
Chicago, base	1.70c
Cleveland, del.	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham, Ala., base	1.75c
Pacific Coast, c.i.f.	2.10c
Do., wide flange	2.20c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham, Ala., base	1.75c
Lackawanna, N. Y., base	1.70c
Pacific Coast, c.i.f.	2.00c
Cleveland, base	1.65c
Philadelphia, del.	1.91c
New York, del.	1.90c
Boston, del.	2.02c
Pittsburgh, cold finish	1.75c
Pittsburgh, forg. qual.	1.85c
San Francisco, c.i.f.	2.10c

RAIL STEEL

Chicago Heights	1.50c
Eastern mills	1.30c

IRON

Chicago, base	1.65c
New York, delivered	1.85c to 1.95c
Philadelphia, delivered	1.86c to 1.96c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts., billet cut lengths	1.75c
Pitts., stock lengths, mill	1.60c
Chi., billet	1.60c to 1.70c
Chi., rail steel	1.45c
Chi., rail steel, road, bridge and culvert	1.45c
Philadelphia, cut lengths	2.06c
Cleveland, cut lengths	1.75c

Cold-Finished Bars, Shafting

Min. 10,000 lbs. of kind and grade

Pittsburgh	1.70c
Chicago, Buff., Cleveland	1.75c
Detroit	1.90c
Eastern Michigan	1.95c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel
Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to 6.75 off
Carloads, Chicago dist.	7.00 to 7.50 off

Alloy Steel

Hot Rolled—F.o.b. Mills
Alloy Quality Bars, 2.65c, mill
(Differentials to various classes of consumers)

S.A.E.	Alloy Diff.	4600 .20 to .30 Mo.	
		1.25-1.75 Ni.	1.05
2000	0.25	5100 .80 - 1.10	
2100	0.55	Cr.	0.45
2300	1.50	51.00 Cr.	
2500	2.25	spring	0.20
3100	0.55	6100 bars	1.20
3200	1.35	6100 Spring	0.95
3300	3.80	Cr., Ni., Van.	1.50
3400	3.20	Carbon Van.	0.95
4100 .15 to .25		9250 (flats)	0.25
Mo.	0.50	9250 (rds.,sq.)	0.50

Strip, Hoops, Bands

Hot-rolled strip up to 23 15/16 in. wide, Pitts.	1.45c to 1.50c
Do, Chicago	1.55c to 1.60c
Do., del. Philadelphia	1.76c to 1.81c
Do., del. NewYork	1.80c to 1.85c
Cooperage hoop, Pitts.	1.55c to 1.60c
Do., Chicago	1.65c to 1.70c
Cold-roll, strip, Pitts., Cleve.	2.00c
Worcester, 3 tons over	2.20c

Rivets

Struc., c.l., Pitts.-Cleve.	2.25c
Struc., c.l., Chicago	2.35c
7/16-in. and smaller, Pitts., Chicago, Cleve.	70, 10 and 5 off

Rails, Track Material

Standard rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$21.00 to 23.00
50 to 75	18.00 to 20.00
80 to 100	24.00 to 27.00
Light rails, 25-45, mills	$32.00
Light rails, Chicago	$34.00
Angle bars, mills	2.75c
Spikes, railroad, mills	2.60c
Spikes, boat, barge, Pitts.	2.75c
Track bolts, Chicago	3.50c
Do, standard, jobbers	73 off list
Tie plates, mills	$37.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 75 off
Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.
Eagle list ..... 75 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 75 off
Tire bolts ..... 60 and 10 off
Stove bolts, 77½, 25 and 10 off in pkgs.; 86 off in bulk.
Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished ..... 75 off

HEXAGON CAP SCREWS

Milled ..... 80-25 off
Upset 1 in. diam. and smaller 80-25-10 off

SQUARE HEAD SET SCREWS

Upset, 1 in. and smaller ..... 75-10-10 off
Headless set screws ..... 75-10 off
Upset, larger than 1 in ..... 75-10 off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh	$2.50
Do, less carloads, 5 kegs or over	$2.90
Less than 5 kegs	$3.05
Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Sheet piling, Pitts.	1.90c

Bars

Slight Betterment in Orders Seen by Some Makers—Prices Being Held Strongly

BAR PRICES, PAGE 53

Chicago—Steel bar specifications reflect the July quiet in demand from miscellaneous consumers and the declining trend in automotive operations. Orders from railroads are scarce and in some instances smaller than a month ago. Little business is appearing from farm implement builders, and little indication is given of how soon operations in that industry will be resumed. Prices generally are steady, soft steel bars continuing 1.70c, Chicago, with rail steel 1.50c and bar iron 1.65c.

Steel Products Co., Chicago, has been awarded 50,000 feet, ¼-inch commercial carbon steel for the Rock Island arsenal at 2.85c, delivered.

Boston—Bids close July 26 on 13,400 pounds of corrosion-resisting steel bars for the navy, part for the Portsmouth, N. H., yard. Most will be in rounds up to 4½ inches diameter. All the Portsmouth needs are rounds of this size. Carbon steel bars are dull, but prices are steady at 1.60c, Pittsburgh.

New York—Commercial steel bars are moving slowly at 1.60c, Pittsburgh, at a rate that has varied little in several weeks.

Navy department, Washington, is taking bids July 26 on 385 tons of bars in 16 to 20-foot lengths.

Philadelphia—Small scattered lots at 1.0c, Pittsburgh, make up commercial steel bar demand. Common iron bars are quiet at 1.60c to 1.65c, Pittsburgh.

Pittsburgh—Carbon steel bar orders last week were less than in the same week of June. This is due to a seasonable contraction in demand and the fact that many bar customers are taking vacations through the entire plant this month. The price shows no variation and alloy bars for the small user are 2.65c, with the usual soft steel bar market 1.60c. Forging bars are in light demand.

Youngstown, O.—Demand for soft steel bars continues fair, just about as in past weeks. Since the resumption of the Ohio works of Carnegie Steel about mid-June, after a threatened indefinite shutdown, it and other valley bar mills have been operating 35 to 45 per cent.

Cleveland—Some producers note that their steel bar sales so far this month are at a slightly higher average than in June, though volume still is distressingly low. Little significance is attached to this, except that business as a whole has not contracted as sharply as might be expected. Commercial steel bars are 1.65c, base, Cleveland. Commercial forging bars range from 1.70c to 1.80c. In view of the fact that the old differential of $3 a ton was generally waived, and that forging quality bars were selling at the same price as ordinary commercial, sellers quoting 1.70c do not consider it as a concession. Makers quoting 1.80c insist they are holding for the full $3 difference. Bar mill operations here are close to 35 per cent.

Tin Plate Production Holds Near 50 Per Cent

Tin Plate Prices, Page 53

Pittsburgh—Operations at tin mills in this district are a shade easier, at slightly under 50 per cent. Large can companies can not be persuaded to increase their inventories and such meager stocks of tin plate as they are carrying represent an insignificant total compared with other years. The open market quotation of $4.75 per base box is unchanged.

Youngstown, O.—To the surprise of tin mill operators, their mills in this district continue to produce at 50 per cent. With a slight interruption late in May, tin plate mills in this and adjacent districts have been operating at this rate since early in January. In the midst of the canning season, there is no sign of a letdown in demand.

Cold-Finished Buying at Lowest Point of Year

Cold Finished Prices, Page 53

Pittsburgh—July is proving the lowest month of the year on shipments and specifications for cold-finished steel. The inactivity is prevalent among screw machine products makers, jobbers and general manufacturing outlets. No automobile makers are willing to order ahead, and orders are entirely in small lots. The base price of 1.70c for 5-ton lots to one shipping point represents the market.

Plates

Tank Awards Larger—Barges More Active—52,000 Tons Are Placed for Hoover Dam

PLATE PRICES, PAGE 53

Chicago—Illinois Steel Co., it is understood, will roll at its Gary, Ind., mill the approximately 52,000 tons of plates required by Babcock & Wilcox Co., New York, for steel pipe to be placed in the four pressure tunnels at the Hoover dam, Boulder City, Nev. This tonnage will be rolled over a number of months and will be fabricated at a special plant near the dam. The contract was awarded Babcock & Wilcox, low bidder, by the bureau of reclamation, Washington, over the protest of another bidder who raised the matter of patents on fabricating the pipe. Babcock & Wilcox has posted bond for $6,000,000 to protect the government.

Tank awards are heavier. One for oil tanks requires 2000 tons of plates. Specifications from railroads for car repair work are light. Plates continue 1.70c, Chicago.

Boston—Plate buying is in small volume. Boiler and car shops are taking small lots. About 170 tons for oil tanks at Quincy, Mass., have been placed. Prices are firm on a basis of 1.70c, Coatesville, Pa. Bidding 3.345c, delivered, Central Iron & Steel Co., Harrisburg, Pa., is low on a small tonnage of floor plate steel for the Boston navy yard.

Philadelphia—A substantial quantity of plates will be required in construction of electrical equipment now being placed by the Philadelphia Electric Co. for its $8,500,000 project at Port Richmond. Turbine contracts have been placed with the Westinghouse Electric & Mfg. Co., and the generators and containers, which will require the greater amount of plates, will be placed shortly. Pusey & Jones, Wilmington, Del., are low on one of two government tenders, with the United Dry Docks Inc., New York, low on the other. Approximately 550 tons of plates will be required for the two boats. Miscellaneous demand continues light, with prices unchanged at 1.70c, Coatesville, Pa. Mills report more interest in oil barges than in several months. Four small barges were awarded in the week to the

United Dry Docks Inc., New York, and specifications for two or three larger ones are expected out within two weeks. Prices are unchanged.

Pittsburgh—Plates are moving slowly at 1.60c, Pittsburgh, with tank and barge makers light buyers. Material for oil refinery work is restricted. In fact, plate specifications are at the low point of many months. Anderson, Clayton & Co., New Orleans, cotton brokers, have placed an order with the Nashville Bridge Co., Nashville, Tenn. for five barges for carrying cotton. Each is 130 x 50 x 9 feet and requires about 200 tons of structural steel and plates.

Cleveland—Plate requirements are comprised almost entirely of small lots, and some makers note a slight improvement in volume so far this month as compared with June. For a tank for Youngstown, O., 220 tons are pending. Plates are firm at 1.60c, base, Pittsburgh.

San Francisco—Bids are in on several hundred tons of medium steel plates for Mare Island and Puget Sound navy yards. Central Iron & Steel Co., Harrisburg, Pa., is low on part of the requirements covered in the July 12 opening. Worth Steel Co., Claymont, Del., booked 43 tons of medium hull plates for Mare Island at 2.1075c, delivered; and Central Iron & Steel Co. 38½ tons of plates for the same point at 2.08c, delivered, bids June 7 and 14 respectively.

Contracts Placed

52,000 tons, Hoover dam outlets, to Illinois Steel Co., Chicago, through Babcock & Wilcox Co., New York, general contractor.

1000 tons, five cotton barges for Anderson, Clayton & Co., New Orleans, to Nashville Bridge Co., Nashville, Tenn.

165 tons, three oil tanks for Quincy Oil Co., Quincy, Mass., to Chicago Bridge & Iron Works, Chicago.

Unstated tonnage, tanks for Phillips Petroleum Co., to Graver Tank & Mfg. Corp., Chicago.

Contracts Pending

800 tons, mainly plates, two lighthouse tenders; ARBUTUS, Pusey & Jones Corp., Wilmington, Del., low, $239,800; WISTARIA, United Dry Docks Inc., New York, low, $129,900. Bids July 7, commissioner of lighthouses, Washington.

567 tons, navy, various yards, bids July 12; Central Iron & Steel Co. low on part of requirements, including approximately 380 tons under two classes. Alan Wood Steel Co. and Joseph T. Ryerson & Son Inc. also low on parts of schedule.

400 tons, plates, shapes, dredge and dredge repairs, unstated interest, to Merritt-Chapman & Whitney Co., Duluth.

300 tons, two 500,000-gallon tanks, water system, Santa Clara, Calif., Pittsburgh-Des Moines Steel Co., Pittsburgh, low.

220 tons, elevated tank, Youngstown, O.

100 tons, tank and tower, United States southwestern reformatory, El Reno, Okla.; bids July 25.

Unstated, tanks, 4,000,000-gallon oil storage, Shell Oil Co., Port Stanley, Ont., general contract to Horton Steel Works, Bridgeburg, Ont.

Unstated tonnage, tank and tower, veterans' hospital, Batavia, N. Y.; Tippett & Wood, Phillipsburg, N. J., low, bids July 12.

Unstated tonnage, electrical equipment for $8,500,000 power plant project of the Philadelphia Electric Co., Port Richmond, Philadelphia; Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., awarded turbines.

Railroads

Specifications on Orders Slow to Come Out—Rail Mills Active Only at Intervals

TRACK MATERIAL PRICES, PAGE 53

Chicago—Despite continued inactivity of railroads in purchases of rails, track material and rolling equipment, it is believed that some buying of an emergency nature will develop over the next few months. Favorable crops in the Northwest are stimulating activity slightly on the part of some carriers in preparing for the movement of grain, but most other roads show little change in shop operations and steel purchases. Releases of fastenings are fairly steady, but no new releases of rails or orders are appearing. The freight car market is dull, with no inquiries in early prospect. June freight car loadings of seven of the leading western roads declined 32 per cent from the figure a year ago. Loadings for the first six months of this year were 24 per cent behind the 1931 half-year total.

Pittsburgh — Only small miscellaneous specifications for finished steel from the railroads are being placed. Rail-laying programs on most lines have been deferred and rail mills have considerable orders on which they would like to receive releases. Carnegie Steel Co.'s rail mill here probably will start early in August, when a grouping will be rolled. Tie plates and spikes are inactive. Prices on railroad track materials are unchanged.

Wire Dull but Hopes for Revival in Autumn

Wire Prices, Page 53

Chicago—Slight improvement in the agricultural outlook as a result of higher prices on some farm commodities gives a moderately better tone to the market for some wire products. This has no effect upon immediate activity, which shows its usual seasonal decline. Some improvement is looked for during August. Specifications for manufacturers' wire also are light. Prices are well maintained at $2 in carloads for wire nails, 2.25c for plain wire and $38 for wire rods.

Unites States engineer at Rock Island, Ill., has awarded Keystone Steel & Wire Co., Peoria, Ill., 36,000 pounds of barbed wire for $950.40, f.o.b. shipping point. The United States engineer at Memphis, Tenn., has awarded wire rope business to Hazard Wire Rope Co., New York, at $47,000, and in lesser sums to Wire Rope Co. of America, New Haven, Conn.; MacWhyte Co., Kenosha, Wis., and Pidgeon-Thomas Iron Co., Memphis.

Worcester, Mass.—Dullness in wire demand extends to practically all departments, although prices are steady, with plain wire 2.30c and spring wire 3.30c.

Pittsburgh—Shipments of nails and other wire products are lower than in June. Many large accounts are suspending shipments until after Aug. 1, due to vacations and inventory periods. Inroads of foreign nails and fencing still are a source of considerable worry to domestic nail mills and the movement continues at Gulf and eastern seaboard points. Prices of 2.20c on plain wire appear to be firm in the domestic market and $1.95 a keg for nails is held.

Cleveland—Nail manufacturers are experiencing considerable competition, especially noted now that business is at low ebb, from the incursion of other packing materials into fields formerly occupied by wood. Demand for economy has led to the use of cardboard cartons. Some packing, however, is done entirely with metal, benefiting steel to that extent, though subtracting from nails. In the main, however, sales of wire and wire products thus far in July show little shrinkage from the June average; with a few makers it is actually better. Prices are steady.

A. Leschen & Sons Rope Co., St. Louis, celebrated its 75th anniversary in June.

Structural Shapes

Awards Step Up Again—Aided by 5000 Tons for Minneapolis Postoffice—Nearly 17,000 Tons Pending for Philadelphia—Foreign Steel Bearing Eastern Market

STRUCTURAL SHAPE PRICES, PAGE 53

New York—While 50,000 to 60,000 tons of structural shapes are likely to become active in this district in the late summer or early fall, the immediate outlook is clouded by limited inquiry. The volume may be increased should general conditions improve and the federal government building program be speeded up. Active inquiry totals 10,000 to 15,000 tons. Fabricators are slightly firmer in their bids, especially the larger shops, and plain material is steady at 1.70c, eastern mill.

Foreign steel continues to make substantial inroads here, shapes being offered at 1.20c, delivered, for small lots, and 0.92c, New York dock, for large tonnages.

Philadelphia — Specifications for the Thirtieth street postoffice requiring 14,000 to 17,000 tons, are expected to be issued within a few days, plans having been approved at Washington. Other government projects here are the 700-ton Federal Reserve Bank building, on which bids have been opened; the proposed customs house, which is held up pending property purchases; and the $2,500,000 navy hospital, which may be built largely of concrete.

Boston—Structural lettings during the week approach 600 tons, the Manchester, N. H., fabricator taking practically half of the tonnage for upper New England work.

Buffalo—Demand for structural shapes continues to broaden after having reached the best proportions of the year. Numerous medium size lots are being awarded.

Pittsburgh—One interest's structural mill here is expecting a fresh volume of releases within a week on some eastern government work which has been placed with fabricators. Aside from this, nothing new is appearing in the market. The open market on plain structural material continues 1.60c, Pittsburgh.

Cleveland—Five hundred tons of sheet piling for the Cleveland easterly sewage disposal plant, and 247 tons of shapes for the Tompkins county, New York, courthouse, for which Cleveland firms have the general contracts, are to be placed this week. Tonnage in small jobs is fairly well maintained.

Chicago—Tonnage in structural awards and inquiry is fairly steady, with bridges comprising the majority of projects. Orders are expected shortly on about 2000 tons for Illinois state bridges, while a scattering of small highway bridges has been placed in nearby states. For the Minneapolis postoffice, 5000 tons have been awarded. Plain shapes continue 1.70c, Chicago.

Contracts Placed

5000 tons, postoffice, Minneapolis, to Worden-Allen Co., Milwaukee. N. P. Severin Co., Chicago, general contractor.

750 tons, vegetable oil works, El Dorado Oil works, Berkeley, Calif., to Moore Dry Dock Co., Oakland, Calif., and Judson-Pacific Co., San Francisco.

700 tons, Freihofer Baking Co. plant, Allentown, Pa., to unamed fabricator.

625 tons, bridge, Green river, King county, Washington, to Isaacson Iron Works, Seattle.

500 tons, highway bridge, Belle Plaine, Kans., to Kansas City Structural Steel Co., Kansas City, Mo.; previously reported as 300 tons to Ben Sibbitt Iron & Foundry Co.

450 tons, addition to refinery, Coffeyville, Kans., to Lackawanna Steel Construction Corp., Buffalo.

410 tons, Crawford avenue bridge, Chicago, to McClintic-Marshall Corp., Bethlehem, Pa.

410 tons, state bridge, Oiltown, Okla., to Petroleum Iron Works, Beaumont, Tex.; L. H. Lacy Co., Dallas, general contractor.

352 tons, bridge, Jasper county, Missouri, to Mississippi Valley Structural Steel Co., Decatur, Ill.

310 tons, apartment hotel, Park avenue and Thirty-ninth street, New York, to Sam Uris Iron Works, New York.

300 tons, highway bridge, Midland county, Michigan, to R. C. Mahon Co., Detroit.

300 tons, two buildings, University of Rochester, Rochester, N. Y., to Genesee Bridge Co. Inc., Rochester, N. Y.

285 tons, Harlan school, Wilmington, Del., to McClintic-Marshall Corp., Bethlehem, Pa.; Cantera Construction Co., general contractor.

285 tons, Harlan school, Wilmington, Del., to unnamed fabricator.

260 tons, piling, docks at Milwaukee; 165 tons to Inland Steel Co., Chicago, remainder to Carnegie Steel Co., Pittsburgh.

250 tons, highway bridge, Whitehall, N. Y., to Lackawanna Steel Construction Corp., Buffalo.

250 tons, bridge, Washington county, New York, to Lackawanna Steel Construction Corp., Buffalo.

210 tons, bridge, Schuyler county, Missouri, to Pittsburgh-Des Moines Steel Co., Pittsburgh.

200 tons, hotel and stores, Bellows Falls, Vt., to Lyons Iron Works, Manchester, N. H.

200 tons, highway bridge, Woodward county, Oklahoma, to Ben Sibbitt Iron & Foundry Co., Wichita, Kans.

200 tons, shapes, plates, Schenley park bridge repairs, Pittsburgh, to Fort Pitt Bridge Works, Pittsburgh, through Welsh Construction Co., Pittsburgh, general contractor.

183 tons, bridge, near San Simeon, Calif., to a San Luis Obispo, Calif. fabricator.

176 tons, bridge, Odaway county, Missouri, to Pittsburgh-Des Moines Steel Co., Pittsburgh.

175 tons, alterations, parish house and reconstruction of tower, Old South church, Boston, to New England Structural Co., Boston; Casper-Ranger Construction Co., contractors. Part of tonnage previously placed.

175 tons, state highway bridge, Cattaraugus county, New York, to Lackawanna Steel Construction Corp., Buffalo.

171 tons, bridge, Laclede county, Missouri, to St. Louis Structural Steel Co., East St. Louis, Ill.

155 tons, postoffice addition, Quincy, Mass., to Boston Bridge Works, Boston, through Supreme Construction Co., New York, general contractor.

120 tons, postoffice, El Centro, Calif., to Minneapolis-Moline Power Implement Co., Minneapolis.

150 tons, warehouse, Dixfield, Me., to Lyons Iron Works, Manchester, N. H.

150 tons, standpipe, Barksdale field, Louisiana, to Pittsburgh-Des Moines Steel Co., Pittsburgh.

115 tons, plant addition, for Columbia Steel Co., Los Angeles, to Pacific Iron & Steel Co., Los Angeles.

114 tons, bridge, Sullivan county, Missouri, to Illinois Steel Bridge Co., Jacksonville, Ill.

110 tons, power plant, Braintree Electric Light Co., Braintree, Mass., to A. O. Wilson Structural Co., Boston.

110 tons, school, Downington, Pa., to the Bauman Iron Works, Reading, Pa.

100 tons, bridge, Camden county, Mo., to Stupp Bros. Bridge & Iron Co., St. Louis.

100 tons, bridge, Tonawanda, N. Y., to Buffalo Structural Steel Co., Buffalo.

100 tons, bridge, Boston & Maine railroad, Saco, Me., to Boston Bridge Works, Boston.

100 tons, warehouse, Colonial Beacon Oil Co., Brooklyn, N. Y., to Grand Iron Works Inc., Bronx, N. Y.

100 tons, armory, West Haven, Conn., to Palmer Steel Co., Springfield, Mass.

100 tons, tennis court building, Glencove, N. Y., to National Bridge Works, Long Island City, N. Y.

Unstated tonnage, Drake exchange,

Awards Compared

	Tons
Awards, week ended July 16	**14,451**
Awards, week ended July 9	**8,174**
Awards, week ended July 2	**29,533**
Awards, this week in 1931	**23,000**
Av. weekly awards, 1931....	**34,236**
Av. weekly awards, 1932....	**15,673**
Av. weekly awards, June.....	**20,034**
Awards, to date, 1931.....	**1,086,754**
Awards to date, 1932.....	**454,530**

Northwestern Bell Telephone Co., Des Moines, Iowa, to Des Moines Steel Co.; C. Weitz & Sons Inc., Des Moines, general contractor.

Contracts Pending

14,000 to 17,000 tons, Thirtieth street postoffice, Philadelphia. Plans approved, specifications expected out immediately.

4000 tons, state capitol building, Bismarck, N. Dak.; bids July 21.

2100 tons, three incinerators, Manhattan, Bronx and Queens boroughs, New York; bids Aug. 10.

1500 tons, postoffice, Rochester, N. Y.; N. P. Severin Co., Chicago, low, $791,000, limestone; $814,223, sandstone. Approximately $8300 less, both items for steel instead of aluminum windows.

1200 tons, Medical school, University of California, San Francisco; bids Aug. 1.

1200 tons, bridge, Channahon, Ill.; Vincennes Bridge Co., Vincennes, Ind., low.

900 tons, approach to St. Louis municipal bridge, East St. Louis, Ill.; bids July 26.

750 tons, addition, postoffice, Jersey City, N. J.; bids Aug. 16.

725 tons, bridge, Marseilles, Ill.; Mississippi Valley Structural Steel Co., Decatur, Ill., low.

591 tons, lock and upper gate bay, Mississippi river, near Alma, Wis., United States engineer, St. Paul, bids at early date. Other requirements include 100 tons steel piling, 48 tons steel forgings, 441 tons steel castings, 15 tons bolts, 15 tons iron castings and 7 tons nickel steel.

500 tons, bridges, Wisconsin.

500 tons, sheet piling, easterly sewage disposal plant, Cleveland; award this week through Lowensohn Construction Co., Cleveland.

300 tons, postoffice, Dubuque, Iowa.

290 tons, market building, Long Beach, Calif.; bids soon.

260 tons, superstructure, William E. Dever crib, Chicago; Midland Structural Steel Co., Cicero, Ill., low.

250 tons, shapes and bars, postoffice, Ft. Myers, Fla.; Prescott-White Corp., New York, low, $164,899, supplemental bids July 6.

200 tons, shapes and bars, federal building, Cheyenne, Wyo.; bids Aug. 17.

200 tons, bridge, Erie railroad, Salamanca, N. Y.

200 tons, postoffice, Reno, Nev.; bids July 28.

200 tons, shapes, plates, gates, pipe and valves, Pine Canyon Dam, Pasadena, Calif.; bids July 26.

190 tons, bridge No. 80, York county, Pennsylvania, bids July 18.

150 tons, postoffice, Glendale, Calif., reduced from 450 tons; bids July 17.

150 tons, pier for Casitas Oil Co., Los Angeles; bids being taken for H-columns.

150 tons, postoffices, Fostoria and Barberton, O., Erie Construction Co., Chicago, low on former; George H. Whike Construction Co., Canton, O., low on latter. Bids July 12.

148 tons, pier, Fort Mason, San Francisco; general contract awarded, steel not yet placed.

130 tons, bridge, Santa Ana river, San Bernardino, Calif.; bids opened.

126 tons, state bridge, Jackson county, Oklahoma; bids July 19.

125 tons, alterations, Mills building, San Francisco; bids received.

110 tons, Pennsylvania railroad bridge, Farnhurst, Del., bids July 19.

100 tons, transit shed, Milwaukee harbor commission; bids in.

Concrete Bars

Volume Contracts Slightly—Bridge and Highway Jobs Are Numerous—900 Tons Pending for Milwaukee Postoffice — Philadelphia Postoffice Develops Tonnage

REINFORCING BAR PRICES, PAGE 53

New York—Reinforcing bars are dull, with contractor-buyers slow to close, although a fair volume pends for highways and bridges in New York and New Jersey.

Bids will be opened Aug. 1 on foundations for the west-side elevated highway section from Thirty-eighth to Forty-eighth streets, taking a large tonnage of bars.

Boston—Outside of moderate needs for state highway and bridge work, inquiry for reinforcing steel is light.

Philadelphia — Reinforcing bar sellers here are endeavoring to firm the market at 1.75c, Pittsburgh, for cut lengths in car lots. A good tonnage will be required for the Thirtieth street postoffice here, plans for which have just been approved.

Pittsburgh—The concrete reinforcing bar market is featured by small scattered awards. There is little prospective work at present.

Cleveland—Demand for concrete bars is limited to small lots. Paterson-Leitch Co., Cleveland, has been awarded 280 tons for the easterly sewage disposal plant.

Chicago—Little change is noted in reinforcing bar demand for road construction and government buildings which recently have constituted the principal activity in this market.

Contracts Placed

370 tons, highway work, Los Angeles county, California, to unnamed interest.

350 tons, state bridge, New York, to Truscon Steel Co., Youngstown, O., through A. I. Savin, Hartford, Conn., general contractor.

Awards Compared

	Tons
Awards, week ended July 16	**2,549**
Awards, week ended July 9	**3,593**
Awards, week ended July 2	**843**
Awards, this week, 1931	**5,464**
Av. weekly awards, 1931	**6,808**
Av. weekly awards, 1932	**4,187**
Av. weekly awards, June	**4,691**
Awards, to date, 1931	**202,495**
Awards to date, 1932	**121,439**

280 tons, easterly sewage disposal plant, Cleveland, to Paterson-Leitch Co., Cleveland; Lowensohn Construction Co., Cleveland, general contract.

225 tons, bridge, Illinois, to Joseph T. Ryerson & Son Inc., Chicago.

225 tons, state building, Smyrna, Del., to Kalman Steel Corp., Bethlehem, Pa.

200 tons, highway, Greenloch to Woods Corner, N. J., to Truscon Steel Co., Youngtsown, O., through Francis A. Canuso & Son, Philadelphia, general contractor.

200 tons, telephone building, Cambridge, Mass., to Barker Steel Co., Boston.

150 tons, two state girder bridges, Methow river, Washington, to unnamed eastern interests.

150 tons, pavement mesh, highway, Milton-Wakefield, N. H., to Wickwire-Spencer Steel Co., Worcester, Mass.; Amos D. Bridges & Sons, Hazardville, Conn., general contractor.

114 tons, highway work in San Diego county, California, to unnamed interest.

105 tons, school, Wilmington, Del., to American Steel Engineering Co.; previously noted as awarded an unnamed fabricator.

105 tons, grain elevator addition, Universal Mills, Fort Worth, Tex., to Fort Worth Structural Steel Co., Fort Worth, Tex.; C. M. Davis, general contractor.

100 tons, New Jersey state road, awarded through Kolyn Construction Co., to Truscon Steel Co., Youngstown, O.

80 tons, bakery for Freihofer Baking Co., Allentown, Pa., to Truscon Steel Co., Youngstown, O.

Unstated, reported about 450 tons, Cle Elum dam, Ellensburg reclamation project, Washington, to Sheffield Steel Corp., Kansas City.

Contracts Pending

595 tons, two state bridges, Ventura county, California; general contract placed.

455 tons, lock and upper gate bay, Mississippi river, near Alma, Wis.; bids to United States engineer, St. Paul, at early date.

300 tons, grain elevator No. 2, Albany, N. Y., delay in awarding general contract; bids opened in April.

290 tons, five buildings, dirigible base, Sunnyvale, Calif.; bids opened.

250 tons, veterans' hospital, Batavia, N. Y.; Morley Construction Co., Kansas City, Mo., low on general contract.

220 tons, bridge, Boise river, Ada county, Idaho; bids opened.

157 tons, state bridges, Oklahoma.

100 tons, superstructure, garage, Philadelphia Savings Fund society, Philadelphia, bids asked; 50 tons for substructure to Taylor-Davis Inc.

100 tons, Federal Reserve bank, Philadelphia, bids in.

Unstated, but substantial tonnage, Thirtieth street postoffice, Philadelphia, plans to be issued shortly.

Unstated, postoffice, Allentown, Pa.; bids Aug. 2.

Pipe

Washington and Baltimore Place Substantial Cast Orders—8000 Tons Up for Oil Pipe Line

PIPE PRICES, PAGE 72

New York—The Standard Oil Co., of New Jersey is expected shortly to issue an inquiry for approximately 8000 tons of pipe for a 20-inch line in northern Pennsylvania. The George J. Atwell Foundation Corp., New York, may close immediately on 3500 tons of steel pipe for the New York courthouse foundation work.

Except two substantial orders for Washington and Baltimore, cast pipe awards generally are small, but more numerous.

Chicago—Cast pipe business is in unchanged volume, small orders which ordinarily account for a substantial proportion of tonnage being lacking. Inquiry also is quiet, principally as the result of the inability of some municipalities to obtain necessary financing. Outstanding in pending work is 1200 tons for Ann Arbor, Mich.

Boston — Cast pipe lettings are slightly heavier, Peabody, Mass., and Rocky Hill, Conn., having bought several hundred tons each. The $2 and $3 increase in cast prices appears to be holding.

Philadelphia—A drying machine manufacturer in this district has closed on two carlots of steel pipe; also on some sheets and angles.

Pittsburgh—Several pipe mills here are receiving an increasing volume of small orders for pipe for midwestern rural sections, due in large part to the upswing in livestock prices. Pipe mills are operating at 12 per cent, mainly seamless.

Birmingham, Ala.—Pipe awards are less numerous, and tonnage is smaller.

Cast Pipe Placed

1000 tons, 36-inch, Washington, to R. D. Wood & Co., Florence, N. J.
975 tons, Baltimore, to United States Pipe & Foundry Co., Burlington, N. J.
500 tons, 6-inch and up, Rocky Hill, Conn., to R. D. Wood & Co., Florence, N. J., through C. A. Blakeslee Co.
210 tons, 6 to 12-inch, additional tonnage, state prison, Dannamora, N. Y., to Donaldson Iron Works, Emaus, Pa.
185 tons, 6 and 10-inch, Framingham, Mass., to Warren Foundry & Pipe Co., Wharton, N. J.
150 tons, 20-inch, Cos Cob, N. Y., to Donaldson Iron Works, Emaus, Pa.
140 tons, 8-inch, Mystic, Conn., to Donaldson Iron Works, Emaus, Pa.
100 tons, 6-inch, Latham's Corner, N. Y., to United States Pipe & Foundry Co., Burlington, N. J.
100 tons, 12-inch, Stanford, Conn., to Donaldson Iron Works, Emaus, Pa.
100 tons, 6 and 8-inch monocast centrifugal, Centralia, Wash., to American Cast Iron Pipe Co., Birmingham, Ala.

Steel Pipe Placed

Unstated tonnage, 10,801 cold-drawn seamless steel boiler tubes, navy, 5055 for Boston, Brooklyn and Norfolk, to Allegheny Steel Co., $3308.40, delivered; 5746 for Puget Sound, to Michigan Seamless Tube Co., $4502.14, delivered. Bids June 28.

Unstated tonnage, approximately 325,370 feet, black and galvanized standard and extra strong black pipe, small sizes, eastern navy yards, to Wheatland Tube Co., Philadelphia, $18,316.66, delivered; western yards, $11,933.72, delivered; bids May 24.

Cast Pipe Pending

1200 tons, 6 to 12-inch, Ann Arbor, Mich.; American Cast Iron Pipe Co. low.
600 tons, 200 tons 6-inch I.D. wrought iron or steel, and 400 tons mainly 8-inch class 250 with fittings, United States southwestern reformatory; bids, July 22, f.o.b. cars, El Reno, Okla., department of justice, bureau of prisons, Washington.
350 tons, 6 to 12-inch, Peabody, Mass.; bids in.
215 tons, 4 and 6-inch, Charles H. Tenney Co., Boston; bids in.
200 tons, sewage disposal plant, Wingdale, N. Y., state project; bids July 27.
200 tons, Public Service Corp. of New Jersey; bids in.
100 tons, 6 to 20-inch, Greenwich, Conn.; bids in.
100 tons, small sizes, Hagerstown, Md.; bids in.

Steel Pipe Pending

8000 tons, oil line, Pennsylvania, Standard Oil Co. of New Jersey.

Expansion in Steel Demand Is Impending

(*Concluded from Page* 13)

put is lagging far behind normal requirements, and that a tremendous replacement demand is being generated, is found in recent records pertaining to scrap. In 1931 it was estimated by competent engineers that corrosion of metals is taking an annual toll of more than a billion dollars in this country, $100,000,000 being charged against the 300,000 miles of oil, gas and water pipe, in the ground.

Though this industry, represented by oil, gas and water interests, has been growing by leaps and bounds, it has taken, as an average, only 9.6 per cent of the country's steel in the past ten years. Railroads, buildings and motor cars, all with heavy scrap toll, have been absorbing 50.1 per cent of the output.

The bulk of available scrap is obtained from these four groups. Therefore, recent figures showing scrap consumption fall far short of the material actually scrapped. Beyond these main groups is a general classification covering miscellaneous and diffused uses of steel, taking in the aggregate 34.8 per cent. In many of these varied lines, such as require tin plate, for example, steel is scrapped almost as soon as it reaches the ultimate consumer.

The point is that scrap consumption records do not measure the wear and waste of steel in the hands of the public. Idle mills and factories do not appear to testify to lusty steel consumption. Nevertheless, steel that has outlived its usefulness is pouring away steadily in a flood of scrap; the greater the flood, the larger and more imperative the demand for new steel, to replenish and rebuild. The World war did not create in this country requirements for as much steel as exist today. (See STEEL, July 4, 1932, page 11).

High Remelt Tonnage

The amount of scrap steel and iron remelted in 1929—36,263,500 gross tons—might with systematic effort be collected and made available in any one year, because the actual supply exceeds this figure. It is cited to indicate approximately the minimum amount of steel and iron going out of service in a year's time; especially significant now when compared with that currently coming in.

Total steel ingot and castings production for 1932, estimated from actual output in the first six months, will be 15,438,246 tons. To this must be added 14.4 per cent, the recent proportion representing pig iron other than basic and bessemer, to arrive at 17,753,982 tons of iron and steel for 1932. While iron and steel scrap consumption this year will be less than this figure, the amount of iron and steel actually going out of service will be much heavier. Similar computations on iron and steel output show 29,561,759 tons for 1931; 46,743,519 tons for 1930; and 64,258,562 tons for 1929.

NOTE—This is the third in a series of articles dealing with current steel production and requirements. The first showing this country's normal requirements in gross tonnages apeared in STEEL, *May* 30; *the second, on normal per capita requirements, July* 4. *Articles analyzing conditions in the main consuming groups will be presented in early issues.*—THE EDITORS

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1831 — MORE THAN 100 YEARS of PROGRESS IN WIRE MAKING — 1932

AMERICAN STEEL & WIRE COMPANY

208 South LaSalle Street, Chicago — SUBSIDIARY OF UNITED STATES STEEL CORPORATION — And All Principal Cities

Pacific Coast Distributors. Columbia Steel Company, Russ Building, San Francisco — *Export Distributors:* United States Steel Products Company, New York

Strip

Demand Uneven and at Low Rate—Automotive and Miscellaneous Consumers Take Less

STRIP PRICES, PAGE 53

Pittsburgh—Orders for hot-rolled strip steel have not improved since about July 1. General buying and automotive needs still are greatly restricted. Mill operations are confined to a few days' run on a single mill as an order backlog is difficult to build up. Cold-rolled strip is decidedly inactive as one large user near here is suspending for vacation until Aug. 1. Prices are steady at 1.45c for hot-rolled and 2.00c for cold-rolled.

New York—Strip business here continues at the low rate of the past several weeks. Sellers look for little substantial improvement before fall. Hot strip is 1.45c, Pittsburgh, in carlots, and cold-rolled 2.00c.

Philadelphia—Strip demand is devoid of any semblance of tonnage buying, with hot-rolled offered generally at 1.45c, Pittsburgh, on car lots, and 1.50c on smaller lots. Cold-rolled strip is unchanged at 2.00c, Pittsburgh.

Youngstown, O.—Strip steel needs, both hot and cold-rolled, appear to have increased since the July Fourth shutdown. While automotive needs are not so pressing as several weeks ago the shrinkage has been comparatively slow. Quotations appear steady.

Cleveland—The usual price for cold-rolled strip is 2.00c, base, Cleveland, and is firmly held at this figure by some producers; a 1.90c price mentioned by one or two sellers recently is believed to apply to seconds, or surplus stocks. Hot-rolled strip holds at 1.45c, base, Pittsburgh, for larger users. Strip shipments to the auto industry are slowing down.

Chicago—Strip demand is spotty and generally unimproved. Specifications from automotive parts makers are tending downward in a number of instances and requirements of miscellaneous users are light. Mill operations are slightly lower at 15 per cent. The schedule of prices is well observed at 1.55c to 1.60c for hot-rolled strip. Cold-rolled strip is 2.00c, Pittsburgh-Cleveland.

Operations Rebound to 15.5 Per Cent; Lower This Week

Pittsburgh—Last week district mills improved two points to 12 per cent. The leading interest is producing ingots at slightly over 10 per cent. Two open-hearth furnaces in an independent's mill resumed early last week. Indications point to no variation from the 12 per cent rate during this week, although open-hearth operations are so intermittent the rate is difficult to judge. Eight of 54 blast furnaces owned by integrated steel concerns are blowing in this district, four being United States Steel Corp. stacks.

Operations, week ended July 16	**15.5**
Operations, week ended July 9	**12**
Operations, week ended July 2	**14.5**
Operations, week ended June 25	**17**
Operations, one year ago	**33**
High for 1932, Feb. 6	**28.5**
Low for 1932—July 9	**12**

Philadelphia—Eastern ingot operations continue at 11-13 per cent, with incoming business still at slightly under this rate. Producers look for little change the remainder of July.

Buffalo—Steelworks in this district will drop back to about an 11 per cent operating rate this week, after having boosted their output to 19 per cent in the week ended July 16. Republic's staggered schedule is responsible. This week will see four of 37 open hearths producing ingots, is it expected.

Youngstown, O.—Steelmaking operations in the week ended July 16 averaged 16 per cent, up four points. This rate will also hold this week. Twenty of 83 open hearths are melting.

Cleveland—Steel ingot production here for the week ended July 16 averaged 18 per cent, compared with 15 per cent in the week preceding, and is likely to remain at 18 for the current week. American Steel & Wire Co. has not set a date for resuming open-hearth production, having sufficient stock of ingots on hand for the present. It does not appear now that open hearths will be started this week. Otis Steel Co. continues with two units; Corrigan, McKinney Steel Co. with four.

Chicago—A slight improvement in operations of independent producers brought ingot production during the past week to around 15 per cent. This figure is expected to hold this week, although mills are unable to regulate schedules far ahead. Blast furnace operations are unchanged, eight of 36 steelworks stacks being active. Finishing mill schedules showed but little change during the past week.

Birmingham, Ala.—Steel mill operations based on ingot production continue at 21 per cent. Six open-hearth furnaces have been in operation, four at Fairfield and two at Gadsden. This pace will be curtailed some this week, dropping to 19 per cent.

Bolt, Nut Demand at Low; Car Repairs May Help

Bolts, Nuts, Rivets Prices, Page 53

Pittsburgh—Bolt and nut demand appears to be experiencing the dullest month of 1932. There is no volume to orders or inquiry and operations are a shade under 10 per cent. The 75 off discount for bolts and nuts is steady and the base price of 2.25c for rivets are steady.

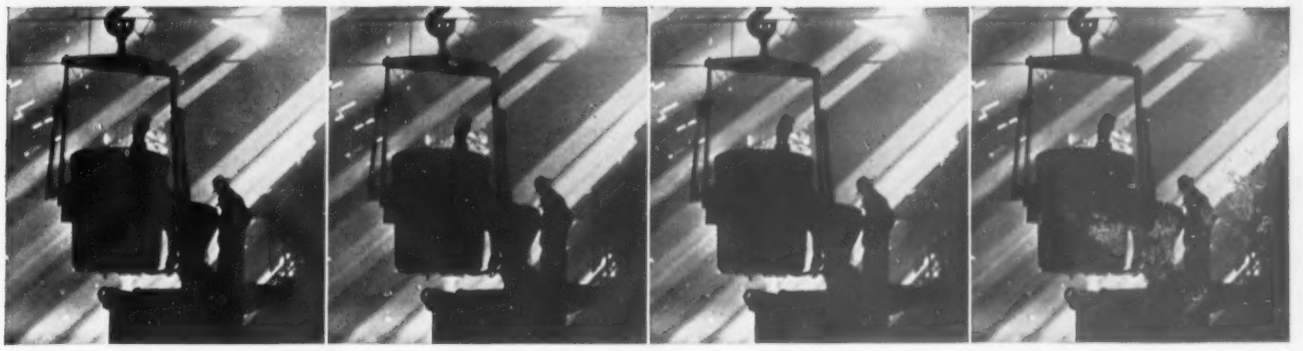
Chicago—Shipments of bolts, nuts and rivets are seeking a new low level, specifications reflecting declining activity in several industries. Consumers are ordering for only immediate requirements and plant shutdowns in several instances are restricting demand. Railroad requirements are light. Practically all third quarter contracts have been distributed. Prices are receiving little test, continuing 75 off for bolts and nuts and 2.35c for large rivets.

Cleveland—Increased repair work by railroads in preparation for the grain movement has brought inquiries for bolts and nuts. Expected dullness marks July with users taking only necessary supplies. Prices are steady.

Semifinished Demand Fairly Well Maintained

Semifinished Prices, Page 62

Sheet and strip steel production in the valley districts is sustaining demand for sheet bars and billets at a higher level than anticipated for July. In all markets a dearth of contracts for third quarter are noted; buying generally being in light volume and for immediate needs only. Sheet bars, billets and slabs usually are $26, base, Pittsburgh, Youngstown, O., and Cleveland, though some makers quote $27, Youngstown and Cleveland, for billets. Forging billets and wire rods hold at $33 and $37, respectively.



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The proper steel for the specific purpose has always proven truest economy, and adds to the efficiency of your plant, adds to the quality of your product. Call upon THE MIDVALE COMPANY at its most convenient office—Philadelphia, New York, Pittsburgh, Washington, Cleveland, Chicago, San Francisco.

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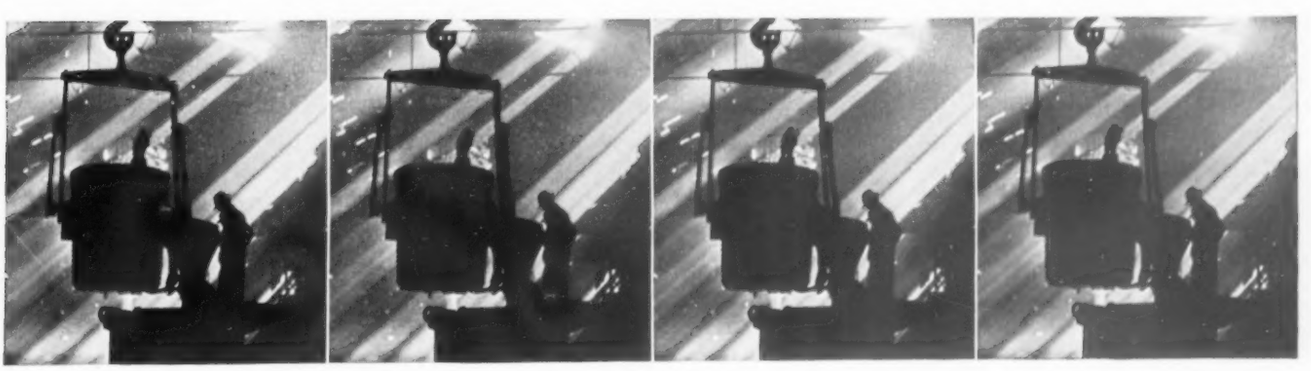

Raw Material Prices

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago, furnace	$16.00
Pittsburgh, dist. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.50
Philadelphia, delivered	14.26
Virginia furnace	17.50
Granite City, Ill., fur.	16.50 to 17.50
Buffalo, fur., local del.	16.00
Buff., all-rail, Boston	18.91 to 19.91
Buff., all-rail, Brooklyn	18.90 to 19.40
Buff., all-rail, Newark	17.28 to 17.78
Ala., Bir. fur., local del.	11.00
Ala., Nor. del., Bir. base	10.00
Alabama, del. Chicago	16.01
Alabama, del. St. L.	14.42
Alabama, del. Cincinnati	13.82
Ala., Phila., dock del.	15.00 to 15.25
Ala., Balt., dock del.	15.00
Alabama, New York dock	15.50
Ala., Boston dock del.	15.75 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	13.82
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	16.50
Buff., all-rail, Brooklyn	19.40 to 19.90
Buffalo, all-rail, Newark	17.78 to 18.28
Buff., all-rail, Boston	19.91 to 20.91
Virginia furnace	18.00
Eastern, del. Phila.	14.76

FOUNDRY, NO. 1X

Buffalo fur., local del.	17.50
Eastern, del. Phila.	15.26

MALLEABLE

Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.50
Pittsburgh dis. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Chicago, furnace	16.00
Buffalo fur., local del.	16.50
Eastern Penna., delivered	16.13 to 19.41
Granite City, Ill., fur.	16.50 to 17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	14.50 to 15.00
Pittsburgh, delivered	15.13 to 16.13
Eastern Penn., del.	14.00
Buffalo fur., local del.	15.50 to 16.00
Montreal, delivered	23.50
Valley, furnace	14.00

BESSEMER

Valley furnace	14.50 to 15.00
Pittsburgh, furnace	15.00
Pittsburgh, delivered	15.63 to 16.13

LOW PHOS.

Valley fur., standard	25.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	14.00
Pittsburgh district fur.	15.00
Pittsburgh, delivered	15.63 to 16.13

CHARCOAL

Lake Superior, del. Chicago	23.04

SILVERY

Jackson County, O., fur. in per cents: 6—$18; 7—$18.50; 8—$18.75; 9—$19; 10—$19.50; 11—$20; 12—$20.50; 13—$21.50; 14—$22.50; 15—$23; 16—$24; 17—$25.50.

Pittsburgh and Buffalo furnace: 7 to 10—$19.50; 15—$23 to $24.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents: 10—$20.50; 11—$21; 12—$21.50; 13—$22.50; 14—$23.50; 15—$24; 16—$25; 17—$26.50.

Coke

Prices Per Net Ton

Beehive Ovens

Connellsville furnace	$2.00 to 2.25
Connellsville foundry	3.00 to 4.25
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	8.21 to 8.81
Chicago, ovens	7.00
New England, del.	10.00
St. Louis, del.	7.75
Birmingham, ovens	4.50
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell., basis	4.50
Portsmouth, O., ovens Connell., basis	4.50
Buffalo, ovens	7.50 to 8.00
Detroit, ovens	8.00
Philadelphia, del.	8.50

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports

Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	7.50
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% man.	8.50 to 9.00
North African low phos.	7.50 to 8.50
Swedish basic, 65%	7.50 to 8.00
Swedish low phos.	9.00
Spanish, North African basic, 50 to 60%	7.00 to 8.00
Newfoundland fdy., 55%	8.00
Tungsten, spot, short ton unit, duty paid	$10.25 to 10.50
Chrome ore, 48% gross ton c.i.f.	$17.00 to 18.00

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55% (nom.)	24 cents
South African, 52%	22 to 23 cents
South African, 49-51%	21 to 22 cents
South African, 44-47%	20 to 21 cents
Indian, 48-50% (nom.)	22 cents
Brazilian, 46-48% (nom.)	18 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$35.00
Missouri	35.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	25.00 to 30.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	$35.00
Joliet, Ill., East Chicago, Ind.	47.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	$61.50

CHROME BRICK

Per Net Ton

F.o.b. shipping point	$42.50

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	38.00
Domes, Chewelah, Wash., base	20.90

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$26.00
Pittsburgh, bassemer	26.00
Youngstown	26.00
Cleveland	26.00
Philadelphia	31.75
Chicago	28.00
Forging, Chicago	33.00 to 34.00
Forging, Pittsburgh	33.00
Forging, Philadelphia	37.75

SHEET BARS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00
Chicago	28.00

SLABS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00

WIRE RODS

Pittsburgh, Cleveland	$37.00
Chicago	38.00

SKELP

All grades, Pittsburgh	1.50c to 1.60c

Ferroalloys

(In dollars, except Ferrochrome)

*Ferromanganese, 78-82%, tidewater, duty paid	$68.00
*Ferromanganese, del. Pittsburgh	73.24
Spiegeleisen, 19-20%, domestic fur. spot†	25.00
Ferrosilicon, 50 per cent, freight all., c. l.	77.50
Do, less carload	85.00
Do, 75 per cent	126.00 to 136.00
Silicomang., 2½% carb.	105.00
2% carbon	110.00
1% carbon	115.00
(The above for spot carlots. Contract price $5 a ton less).	
Ferrochrome, 60-70 chromium, 4-6 carbon, cts. lb. con. del.	10.00
Do, for spot delivery	10.50
Ferrotungsten, stand., lb. cont.	1.00 to 1.10
Ferrovanadium, 30-40 per cent, per lb. contained, on analysis	3.05 to 3.30
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis; 18%, $2 unitage	68.00
Ferrophosphorus, electrolytic per ton carload, 23-26% f.o.b. Anniston, Ala.; 24%, $4.25 unitage	91.00
Ferromolybdenum, stand. 50-60 per cent, per lb.	0.95
Cal. Molybdate, lb. cont.	0.80
Molybdate, lb. cont.	.80

†Carloads. Differentials apply to quant.
*To users of carloads to 1000 tons annually. Differentials to large users.

Fluorspar

85 and 5 per cent grade

Washed gravel, domes., net ton, del. Pitts. equiv.	$18.31
Washed gravel, import duty paid tide, gross ton	19.50

Pig Iron

Shipments at Year's Low Point —Furnaces Expect August Pickup—Southern Output Off

PIG IRON PRICES, PAGE 62

Pittsburgh—A few fill-in lots of pig iron were in the market last week, which was some improvement over the virtual suspension of trade during the week of July 4. Such lots, however, were mainly in truck loads, or occasionally for 25 or 30 tons. One interest reports moving four carloads last week, and sales for other furnaces were proportionately small. The local price situation is without pressure on such small buying, and $15, local furnace, prevails for all grades. A Hubbard, O., blast furnace, which resumed a week ago, is supplying iron to a moldmaker on some business it has closed with a West Virginia steel mill.

Boston—Pig iron prices are inclined to be easier. Several foundries claim they have been offered outside domestic iron at $15.50, delivered. Low prices, however, fail to attract volume. The local producer's range is unchanged at $16 to $17, furnace; Buffalo, $14 to $14.50, furnace; and southern, $10, Birmingham. Dutch iron stored at Providence is reported easier for nearby delivery. Indian iron is $16, dock. A Worcester consumer is inquiring for about 700 tons of special analysis iron for August to November delivery, inclusive.

New England Freight association has docketed a proposed reduction in carload shipments of pig iron, 56,000 pounds, from Beacon, N. Y., ex-barge, to Turners Falls and Easthampton, Mass. The new rate is $2.50 a gross ton, against $3.20 at present. The change places new rates to the points named comparable with rates on other New Haven railroad stations.

New York—Pig iron buying is light, although indications point to improvement after this month, when more foundries are expected to be in operation. Buffalo iron is unchanged at $14 to $14.50, furnace; and eastern Pennsylvania iron, $13.50 to $14, although the lower figure is the more representative. One Buffalo producer recently shipped 1000 tons of iron by barge for storage in northern New Jersey, and another is said to be shipping 400 tons.

Buffalo—Sales and inquiry are near the vanishing point, and iron is accumulating even at the reduced operating rate which has prevailed for a long period.

Philadelphia—Eastern Pennsylvania foundry iron is moving generally at $13.50, furnace, with the $14 prices disappearing. Basic iron is off nominally to $14, delivered, eastern Pennsylvania, subject to test of sizable tonnage. Trading generally continues at a low rate.

Youngstown, O.—Nothing has occurred in the past week to cause any change in the current pig iron trade. Purchasing by gray iron and malleable foundries still is restricted to carloads. Stocks on consumers' yards are almost nil. Local ingot-mold foundries are taking hot metal for about one week's operation in each month. Quotations are unchanged on all grades.

Cleveland—This month is expected to mark the low point of the year in pig iron shipments, makers feeling confident August will develop some improvement. The market in Cleveland is quieter than at any previous time this year. One large foundry now operating only one or two days a week has sufficient capacity, it is said, to take care of current local demand for all malleable and foundry iron castings. Sales here are too restricted to clarify the price situation; nothing has appeared to test $15.50, base, Cleveland, for local delivery, and makers do not see that anything could be gained by reducing. The price for outside delivery also is nominal at $14 to $14.50, base.

Cincinnati—Few sales of pig iron are being made, even in carload lots. Foundries generally are near the low mark of the year. In one instance four companies have pooled requirements at one foundry, to promote economy. Shipments show a downward tendency.

Chicago—Indications point to a new low level in pig iron shipments during July. Operations of most foundries, particularly those engaged in production of automotive parts, are declining, while practically no orders are appearing from the railroad or farm implement industries. Inquiry is slightly more active in some directions, but new buying continues light. The market is held firmly at $15, furnace for No. 2 foundry and malleable grades. Sellers generally are taking a strong stand at this figure, following the recent decline from $16.

St. Louis—Current purchasing for spot or forward shipment continues virtually at a standstill. Specifications on previous orders, however, show some improvement, compared with June. A slight gain in consumption is noted since July 1.

Toronto, Ont.—A slightly better call for pig iron has developed in the Canadian markets, though sales continue limited to small lots. The melt averages 15 to 20 per cent.

Birmingham, Ala.—Pig iron production is to be further reduced in the next few days. Four blast furnaces now are making iron; three, foundry; and one, basic. Base prices remain at $10 and $11, the higher for melters in local territory.

Coke

Shipments Fail to Improve— Furnace Stocks Increase— Water-Gas Orders Steady

COKE PRICES, PAGE 62

Pittsburgh—Coke commitments from the foundries are no better. Stocks of merchant furnaces are high. There appears a continued good movement in coke for water gas production in the East. Prices are fairly firm, with $2 general on furnace coke, and $3.25 to $4 the market on foundry grades.

Boston—By-product foundry coke is steady at $10, delivered, with little change in foundry requirements.

New York—With foundry operations still reflecting seasonal curtailments, the movement of metallurgical, coke, both beehive and by-product, is light. Prices are easy and unchanged.

Cincinnati—Shipments of by-product coke indicate no change in demand, despite one report of a spurt in orders for foundry and domestic coke. Prices are steady.

Chicago—The decline in foundry operations is accompanied by lighter shipments of by-product coke. Releases currently are at the lowest level of the year. The market remains $7, ovens.

St. Louis—Specifications for metallurgical coke have fallen to record low proportions. Foundries have ample stocks, or coverage to support the present rate of operations.

Birmingham, Ala.—Coke demand still is slow and the base price is unchanged. Less than 40 per cent of oven capacity is engaged.

One 660-gallon percolator, four 350-gallon and four 100-gallon storage tanks made of ENDURO by Lee Metal Products Co., Inc., Philipsburg, Pa. for H. Kohnstamm & Co., Brooklyn, N.Y., for the manufacture of extracts.

In plants manufacturing products for human consumption the toll taken by corrosion, unless special precautions are exercised, is three-fold. Equipment subject to corrosion must be replaced frequently, often at high cost. Process liquors are often spoiled by contamination. And the cost of keeping equipment clean and usable is often much higher than it should be.

ENDURO, Republic's Perfected Stainless Steel, eliminates these three sources of expense, and makes possible new economies in plant operation. ENDURO equipment lasts longer because it does not corrode, the inherent qualities of the metal rendering it resistant to the attack of many chemical compounds and acids, including those found in fruits, vegetables, milk and milk products. It cuts waste losses because it imparts no metallic taste, no color, and thus eliminates spoilage due to these causes. It is easy to keep clean, because it is non-porous, non-tarnishing and rust-proof, a valuable feature where cleanliness and sanitation are vital factors.

ENDURO
REPUBLIC'S PERFECTED STAINLESS STEEL

Progressive manufacturers will sense the boundless possibilities of this new metal and specify it for new equipment where corrosion must be overcome. Write for more detailed information.

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CENTRAL ALLOY DIVISION . . MASSILLON, OHIO

REPUBLIC STEEL CORPORATION

Scrap

Further Slight Reductions as Buying Holds Off—Some Material Being Stocked for Profit

Chicago—Activity in the scrap market is principally small dealer purchases, buying consumers being absent. Releases against contracts for heavy melting steel are withheld in several instances as a result of the continued low rate of open-hearth operations. Quotations are nominal, without test of consumer buying. Dealers are pickng up odd lots at distress prices but are finding difficulty in moving accumulated material. Offerings by railroads are light. Heavy melting steel is nominal at $4.50 to $5, with compressed sheets $3.50 to $4.

Boston—Scrap demand continues at a low ebb. Prices are nominal on most grades and easy on others. A little No. 1 steel is going to Worcester at $5.25, delivered, but there is

Iron and Steel Scrap Prices

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	6.00 to 7.00
Boston, dealers	3.75 to 4.00
Buffalo, No. 1	6.50 to 7.00
Buffalo, No. 2	5.00 to 5.50
Chicago	4.50 to 5.00
Cleve., No. 1	6.50 to 7.00
Cleve., No. 2	6.25 to 6.75
Det., No. 1 deal.	3.50 to 4.00
Det., No. 2 deal.	2.00 to 2.50
E. Pa. del. mill	6.00 to 6.50
E. Pa., No. 2 del.	4.00 to 4.50
N. Y. deal. R. R.	2.85 to 4.00
N. Y. deal, No. 2	1.00 to 2.00
N. Y. deal. yd.	2.50 to 3.00
Pitts. No. 1	8.00 to 8.50
St. L. No. 1 sel.	5.50 to 6.00
Federal, Ill.	5.00 to 5.50
Granite City, Ill.	4.50 to 5.00
Valleys, No. 1	8.50 to 9.00

COMPRESSED SHEETS

Buffalo, dealers	5.00 to 5.50
Chi. (Factory)	3.50 to 4.00
Cleveland	6.50 to 7.00
Detroit, dealers	3.50 to 4.00
E. Pa. new mat.	5.00 to 5.50
Pittsburgh	7.50 to 8.00
Valleys	8.00 to 8.50

BUNDLED SHEETS

Buffalo	4.00 to 4.25
Cinci., del.	3.75 to 4.25
Cleveland	6.00 to 6.50
Eastern, Pa.	5.00
Pittsburgh	6.50 to 7.00
St. Louis	1.50 to 2.00

SHEET CLIPPINGS LOOSE

Chicago	2.50 to 3.00
Cincinnati	2.00 to 2.50
Detroit, dealers	1.25 to 1.75
St. Louis	1.50 to 2.00

STEEL RAILS SHORT

Birmingham	9.00 to 9.50
Boston, dealers	4.00 to 4.50
Buffalo	9.00 to 9.50
Chicago (3 ft.)	7.00 to 7.50
Chicago (2 ft.)	7.50 to 8.00
Cinci., deal.	8.00 to 8.50
Detroit, deal	7.00 to 7.50
Pitts. (open-hearth, 3 ft. and less)	10.00 to 10.50
St. Louis	7.50 to 8.00

STOVE PLATE

Birmingham	5.50 to 6.00
Boston, dealers	2.00 to 2.50
Buffalo	6.50 to 7.00
Chicago, net	4.50 to 5.00
Cinci., deal. net	3.25 to 3.75
Det., net deal.	2.50 to 3.00
Eastern Pa.	6.00
N. Y., deal. mill	1.75 to 2.00
St. Louis	5.50 to 6.00

COUPLERS, SPRINGS

Buffalo	9.00 to 9.50
Chicago	5.50 to 6.00
Eastern Pa.	7.50 to 8.00
Pittsburgh	8.50 to 9.00
St. Louis	6.00 to 6.50

ANGLE BARS—STEEL

Chicago	6.50 to 7.00
St. Louis	6.00 to 6.50

LOW PHOSPHORUS

Buffalo, billets and bloom crops	9.00 to 9.50
Cleveland bil. and bloom crops	9.00 to 10.00
Eastern Pa.	9.00 to 9.50
Pittsburgh billet bloom crops	10.50 to 11.00
Pitts., sheet bar crops	10.75 to 11.25

FROGS, SWITCHES

Chicago	4.50 to 5.00
St. Louis	6.00 to 6.50

SHOVELING STEEL

Chicago	4.50 to 5.00
Cleveland	6.25 to 6.50
St. Louis	4.50 to 5.00

RAILROAD WROUGHT

Birmingham	5.00 to 6.00
Boston, dealers	1.00 to 1.50
Buffalo, No. 1	4.25 to 4.75
Buffalo, No. 2	6.50 to 7.00
Cinci., No. 2	4.50 to 5.00
Chi., No. 1, net	4.00 to 4.50
Chicago, No. 2	4.50 to 5.00
Eastern, Pa.	6.00 to 6.50
N. Y., No. 1, deal.	2.50 to 3.00
Pitts., No. 2	8.00 to 8.50
St. Louis, No. 1	3.50 to 4.00
St. Louis, No. 2	4.50 to 5.00

SPECIFICATION PIPE

Boston	3.00 to 4.00
Eastern Pa.	7.00 to 7.50
N. Y., deal	2.00 to 2.25

BUSHELING

Buffalo, No. 1	5.00 to 5.50
Chicago, No. 1	3.50 to 4.00
Cinn., No. 1 dl.	3.75 to 4.25
Cinn., No. 2	2.25 to 2.75
Cleve., No. 2	4.00 to 4.25
Det., No. 1 new deal.	2.50 to 3.00
St. L., No. 1	3.00 to 3.50
Val. new No. 1	8.00 to 8.50

MACHINE TURNINGS

Birmingham	3.00 to 3.50
Boston, dealers	0.50 to 1.00
Buffalo	3.00 to 3.50
Chicago	2.00 to 2.50
Cin., deal.	2.75 to 3.25
Cleveland	3.00 to 3.50
Detroit	1.25 to 1.75
Eastern Pa.	3.00 to 3.50
N. Y., deal	1.35 to 1.50
Pittsburgh	5.00
St. Louis	1.50 to 2.00
Valleys	5.75 to 6.25

BORINGS AND TURNINGS
For Blast Furnace Use

Boston, dealers	.60 to .75
Buffalo	3.25 to 3.50
Cinn., deal.	2.75 to 3.25
Cleveland	3.50 to 4.00
Detroit, deal.	1.75 to 2.25
Eastern Pa.	3.00 to 3.50
N. Y., deal	1.35 to 1.50
Pittsburgh	4.50 to 5.00

CAST IRON BORINGS

Birming., chem.	12.50 to 13.00
Birming., plain	3.00 to 3.50
Boston, chem.	5.00 to 5.50
Boston, dealers	1.00 to 1.25
Buffalo	3.25 to 3.75
Chicago	2.00 to 2.50
Cinn., deal.	2.75 to 3.25
Cleveland	3.50 to 4.00
Detroit, deal.	1.75 to 2.25
Eastern Pa.	3.00 to 3.50
E. Pa., chem.	8.00 to 10.50
N. Y., deal.	1.00 to 1.50
Pittsburgh	4.50 to 5.00
St. Louis	2.75 to 3.25

PIPE AND FLUES

Cinn., deal.	3.00 to 3.50

RAILROAD GRATE BARS

Buffalo	4.00 to 4.50
Chicago, net	4.50 to 5.00
Cincinnati	3.50 to 4.00
Eastern Pa.	6.00
N. Y., deal.	3.50 to 4.00
St. Louis	4.50 to 5.00

FORGE FLASHINGS

Boston, dealers	2.00 to 2.50
Buffalo	4.00 to 4.50
Cleve. ov. 10 in.	6.50 to 7.00
Detroit	3.00 to 3.50

FORGE SCRAP

Boston, dealers	1.75 to 2.00
Chicago	6.50 to 7.00
Eastern Pa., del.	5.00 to 5.50

ARCH BARS, TRANSOMS

Chicago, net	4.50 to 5.00
St. Louis	5.00 to 5.50

AXLE TURNINGS

Boston, deal.	6.00 to 6.50
Buffalo	6.50 to 7.00
Chi., elec. fce.	4.00 to 4.50
Cleveland	6.50 to 6.75
Eastern Pa., del.	6.00
Pittsburgh, O. H.	7.00 to 7.50
St. Louis	3.50 to 4.00

STEEL CAR AXLES

Birmingham	9.50 to 10.00
Boston, ship. pt.	6.00 to 6.50
Buffalo	10.00 to 10.50
Chicago, net	7.00 to 7.50
Eastern Pa.	14.50
St. Louis	8.25 to 8.75

SHAFTING

Boston, ship. pt.	7.50 to 8.50
N. Y., deal.	6.50 to 7.00
St. Louis	7.50 to 8.00
E. Penna.	11.00 to 12.00

CAR WHEELS

Birming., iron	6.00 to 6.75
Boston, iron deal.	3.50 to 4.00
Buffalo, iron	7.00 to 8.00
Buffalo, steel	8.00 to 8.50
Chicago, iron	5.50 to 6.00
Chi., rolled steel	5.50 to 6.00
Cincinnati iron	6.00 to 6.50
E. Pa. steel	7.50 to 8.00
E. Pa. iron	8.00 to 8.50
Pitts., iron	8.50 to 9.00
Pitts., steel	8.50 to 9.00
St. Louis, iron	5.00 to 5.50
St. Louis, steel	5.00 to 5.50

NO. 1 CAST SCRAP

Birmingham	6.50 to 7.00
Buffalo (Mach.)	8.75 to 9.25
Buffalo, cupola	8.00 to 8.25
Boston, textile	7.00 to 7.50
Chicago, mach.	6.15 to 6.70
Chi., railroad, net	5.00 to 5.50
Chicago, agri., net	4.50 to 5.00
Cinn., mach. cup.	6.00 to 6.50
Cleve. cupola	6.50 to 7.00
Det., net deal.	6.50 to 7.00
E. Pa. cupola	9.00
N. Y., cup. deal.	5.00 to 6.00
N. Y., del. local foundries	7.50 to 8.00
Pitts., cupola	8.50 to 9.00
San Fran., del.	13.50 to 14.00
Seattle	5.00 to 7.50
St. L. No. 1 ma.	6.50 to 7.00
St. L., No. 1	6.00 to 6.50

HEAVY CAST

Boston, del.	2.75 to 3.00
Bost., mach. cast	7.00 to 7.50
Buffalo, break.	5.00 to 5.50
Cleve., break	3.50 to 4.00
Detroit, auto, net deal.	7.00 to 7.50
Det., break., dl.	3.75 to 4.25
Eastern Pa.	7.50 to 8.50
N. Y. No. 1, dl.	4.00 to 4.25
N. Y. break, dl.	3.50 to 4.00
Pittsburgh	7.75 to 8.25

MALLEABLE

Boston Consum.	6.00 to 6.25
Buffalo	7.50 to 8.00
Chicago, agri.	5.00 to 5.50
Chicago, R. R.	5.00 to 5.50
Cinci., R. R., del.	7.00 to 7.50
Cinci., agri. del.	6.50 to 7.00
Cleveland, rail	7.50 to 8.00
Det. auto deal.	5.00 to 6.00
St. Louis, rail	4.75 to 5.25

RAILS FOR ROLLING
5 feet and over

Birmingham	7.50 to 8.00
Boston, deal.	5.00 to 5.50
Buffalo	7.00 to 7.50
Chicago	6.50 to 7.00
Eastern Pa.	9.50
New York dealer	4.25 to 4.75
St. Louis	7.00 to 7.50

LOCOMOTIVE TIRES

Chicago, cut	7.00 to 7.50
St. L., No. 1	4.50 to 5.00

LOW PHOS. PUNCHINGS

Chicago	6.50 to 7.00
Buffalo	9.00 to 9.50
Eastern Pa.	9.50 to 10.00
Pittsburgh	9.00 to 9.50

no buying of No. 2. Approximately 2000 tons of machinery cast for Canada, water shipment, brought $4.25 to $4.50, dock. Dealers are reported to have bid $6 for steel car axles and $7.50 for shafting, shipping point, while iron car wheels are easy, with $3.50 offered.

New York—While $4 is being paid for No. 1 melting steel for barge loading, dealers have paid under $3 for shipment to eastern Pennsylvania at around $6, delivered. The dealer buying for barge will be in the market for some time, having taken a substantial order from an eastern steel works. This price is the same last paid for export. Most grades are dull.

Philadelphia—Pennsylvania railroad disposed of 2200 tons of cast iron car wheels on its recent list to two eastern consumers, one at Claymont, Del., and the other at Harrisburg, Pa. Usually this material is sold in the Pittsburgh district. Some strength is shown in heavy melting steel and breakable cast, although several grades have been reduced.

Buffalo—Scrap demand continues negligible. Some small shipments have been made on turnings and borings contracts, and to stove plate melters, but no buying is reported. Prices are nominal.

Pittsburgh—A dealer has bought 800 tons of No. 1 heavy melting steel which Baltimore & Ohio railroad offered on its monthly list, closed July 11. The price was $8 per gross ton and the material will be stocked. There were no mill purchases last week and there is no favorable prospect this week. With another week to go in the month it is likely that July will pass here without mill buying. Pennsylvania railroad on its last list did not sell its scrap rails but moved 2200 tons of iron car wheels to an eastern point. Heavy breakable cast scrap is moving between $7.75 to $8.25. The market on No. 1 heavy melting steel continues $8 to $8.50. Most other prices are entirely nominal.

Cleveland—Melters are taking their requirements from yard stocks and are not buying further. An occasional carload offered to avoid demurrage makes most of the present movement. Prices have not been tested and are not changed.

Detroit—Despite the extreme depths to which iron and steel scrap prices already have descended, further reductions are noted in No. 1 new busheling, compressed sheets, No. 1 heavy melting steel, No. 1 cast, and heavy auto cast. Compressed sheets and melting steel now are $3.50 to $4. In reality, all prices are nominal. Any tonnage demand coming into the market suddenly might raise prices $1 to $2 a ton over night, dealers say.

Cincinnati—Revision of iron and steel scrap quotations is attributed chiefly to absence of sustained demand. Mills decline to add to present stocks, and speculative buying by dealers has vanished. Heavy melting steel stands at $4.50 to $5 but revision downward in No. 1 cast, malleable and most railroad grades is noted.

St. Louis—Trading in iron and steel scrap is virtually at a standstill. Purchasing by melters has almost entirely disappeared and exchanges between dealers are insignificant.

There were no further changes in prices but mill sales lacking, current quotations are not significant. Heavy melting steel of the several grades ranges from $4.50 to $6 per ton, with no recent sales to verify either figure of the spread.

Birmingham, Ala.—There is little demand for iron and steel scrap and market is lifeless. Prices are weak and without prospect. Melters are carrying minimum stocks.

Toronto, Ont.—New business in iron and steel scrap is specialized and spotty. No. 1 machinery cast has steady call, stove plate and malleable are moving slowly and other iron grades are dull. Steel scrap is at a standstill with mills out of the market. It is reported that a Montreal dealer placed an order during the week for 2000 tons of machinery cast with a Boston dealer for immediate delivery.

Warehouses Give Lower Prices on Quantities

Warehouse Prices, Page 72

Philadelphia—Jobbers here have reduced base prices on several products, according to the total combined weight of orders. The new schedule is: Plates, shapes and bars, 2.45c, under 4000 pounds; 2.30c on lots of 4000 to 7999 pounds, 2.20c, 8000 to 14,999 pounds; and 2.10c, 15,000 pounds and over.

On blue annealed sheets, 10 to 16 gage, the prices under these brackets are, respectively, 2.90c, 2.75c, 2.65c and 2.55c; bands, 2.75c, 2.60c, 2.50c and 2.40c; and hoops, 3.00c, 2.85c, 2.75c and 2.65c. These base prices amount to a reduction of 15 cents, where the combined weight is 4000 to 7999 pounds; 25 cents, 8000 to 14,999 pounds; and 35 cents, 15,000 pounds and over. Extras for quantities for size, etc., will be applied as heretofore.

Boston—Warehouse base price for cold-drawn rounds and hexagons is 3.60c with flats and squares 4.10c. Jobbers have adopted new extras and warehouse differentials on cold-finished bars and new extras on hoops and bands, although base prices for hoops and bands are unchanged.

New York — Warehouse volume continues to drag at the recent low rate. New prices on hoops and bands represent a reduction of several dollars a ton, but even normal business in these is a small factor in this market. Prices are not tested on any sizable volume, but sheets in combination orders of even small lots are shaded by some jobbers.

Pittsburgh—Steel from jobbers is in occasional spurts of activity followed by dullness. Small orders predominate. July so far has been a low point in billings. Base prices are unchanged but hoop and band extras have been revised.

Cleveland—Little change is noted in volume of warehouse business from recent weeks. Some adjustment has been made in prices of flat rolled steel, all under ¼-inch thick being placed on a single base of 3.00c. The former price of bands was 3.00c, but bands now take new extras. Hoops, formerly 3.55c, base, now are 3.00c. Most band extras remain unchanged, but some extras for hoops are higher. The base price for flats ¼-inch and over remains 2.75c.

Cincinnati — Seasonal influences are disclosed in a slightly lower volume from warehouses, the effect being especially noticeable without appreciable support from demand for structural materials.

Chicago—Sales have resisted the general decline in industrial activity this month, showing slight change from the low June volume. Prices are unchanged.

St. Louis—Typical summer quiet limits iron and steel warehouse business. Sales since the Fourth of July closing have been unusually light, even for this season.

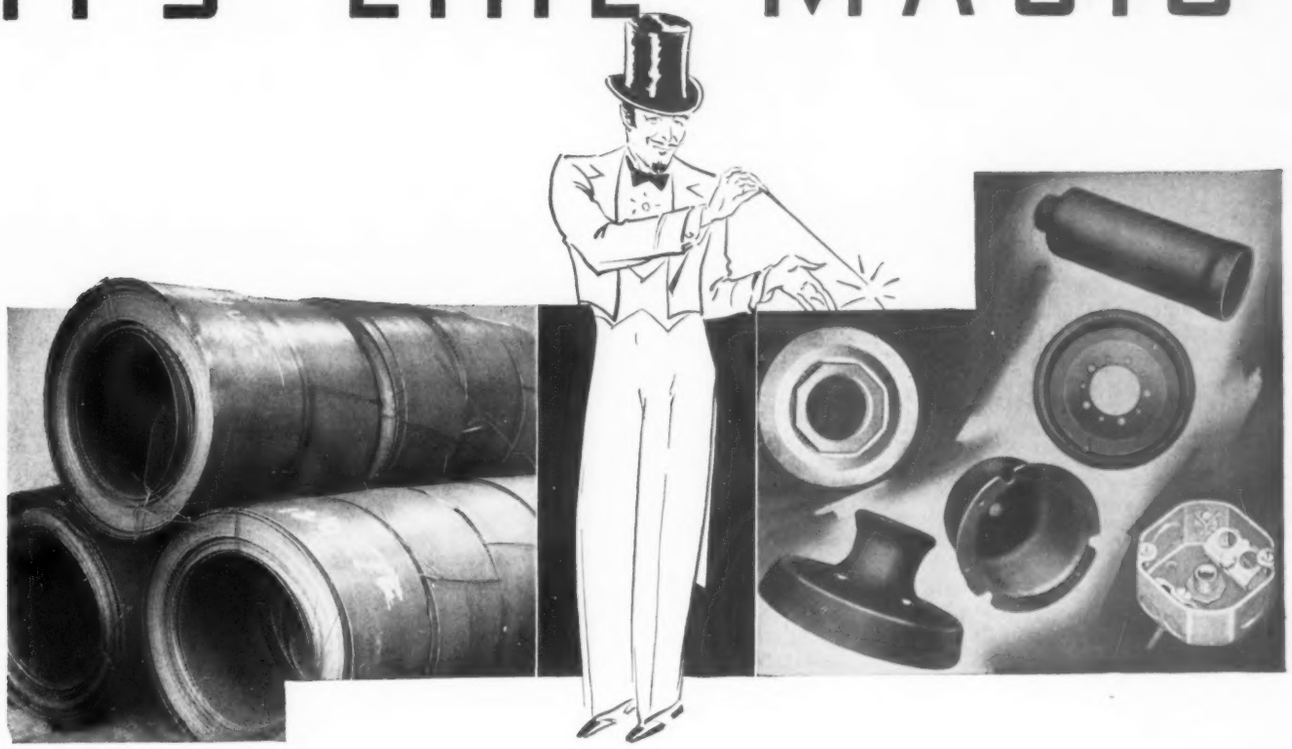
Ferroalloy Shipments Lower Than June Rate

Ferroalloy Prices, Page 62

A slight improvement is reported in ferroalloy sales by leading sellers at New York, but the general market activity remains at a low ebb, and July shipments now are expected to fall below those of June. Recent minor fluctuations in steelworks operations in the Middle West have had little effect upon the market or shipments which continue near the year's lowest level. Ferromanganese is unchanged at $68, duty paid; and domestic 19 to 21 per cent spiegeleisen, $25, furnace.

HOT ROLLED STRIP

IT'S LIKE MAGIC-



. . . the ease and clock-like precision with which the most impossible looking stamping, forming, and deep drawing jobs are accomplished with Acme Strip Steel.

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COLD ROLLED STRIP

Nonferrous Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 5.75c, Conn., for copper

Sheets	
Yellow brass (high)	12.00
Copper, hot rolled	14.87½
Lead sheets, cut, to jobbers	6.25
Zinc sheet (100-lb. base)	9.00
Tubes and Pipes	
Seamless yellow brass (high)	15.25
Seamless copper	14.37½
Rods	
Yellow brass (high, full turnings)	9.75
Naval brass	10.87½
Anodes	
Copper untrimmed	11.75
Wire	
Yellow brass (high)	12.00

Old Metals

Dealers' buying prices, cents lb.

No. 1 Composition Red Brass	
New York	2.25 to 2.50
Chicago	1.87½ to 2.00
Cleveland	2.50 to 2.75
St. Louis	2.00
Heavy Yellow Brass	
New York	1.50 to 1.75
Heavy Copper and Wire	
New York	3.25 to 3.50
Chicago, No. 1	3.00 to 3.25
Cleveland	2.75 to 3.00
St. Louis	2.50
Composition Brass Borings	
New York	2.12½ to 2.37½
Yellow Brass Tubing	
Cleveland	1.25 to 1.50
Light Copper	
New York	2.62½ to 2.75
Chicago	2.00 to 2.25
Cleveland	2.25 to 2.50
St. Louis	2.25
Light Brass	
Chicago	1.12½ to 1.25
Cleveland	1.00 to 1.25
St. Louis	1.25
Lead	
St. Louis	1.50
Zinc	
New York	0.75 to 1.00
Cleveland	0.87½ to 1.00
St. Louis	1.00
Aluminum	
Clippings, new, soft, Cleve.	8.75 to 9.25
Clippings, hard, Cleveland	6.00 to 6.50
Borings, Cleveland	3.00 to 3.25
Mixed cast, Cleveland	3.25 to 3.75
Mixed cast, St. Louis	2.50 to 3.00

Secondary Metals

Remelt, aluminum No. 12	7.00 to 8.00
Brass ingots, 85-5-5-5	5.75

Metals

Copper, Lead and Zinc Work to Lower Levels as Demand Fails To Show Increase

New York—Quotations on leading metals worked to lower levels last week, including copper, lead and zinc. Tin prices were at about the level of the preceding week. Only aluminum, nickel and antimony held unchanged.

Copper—Domestic demand for copper showed no improvement. Early in the week one custom smelter offered metal at 5.25c, Connecticut, for delivery through the end of the year. Most customs interests lowered their price to this level but mine producers held to 5.37½c. So far the 4-cent tariff has served only to depress the domestic market rather than force up prices. The foreign price has fallen to 4.75c with American sellers asking 5.50c. Scrap was easier last week, brass ingot declined ¼-cent but copper and brass products remained unchanged.

Zinc — Continued slow consumer buying brought out increased shading in an attempt to stimulate demand and the East St. Louis price in consequence eased to 2.50c, East St. Louis. This shading, however, resulted in no increase in consumer interest. No market was established in Tri-State ore for the first time in years.

Lead—Quotations were established on a single basis early in the week when American Smelting & Refining Co. cut to 2.70c, New York. East St. Louis, price settled to 2.55c. Lower prices failed to improve buying and sales were confined to a few scattered carlots for prompt and August delivery. Lead sheet and pipe prices were reduced.

Tin—Average price level for the week was somewhat higher but consumers made only necessary purchases. Continued steadiness in quotations was attributed to support of buying for pool account in London.

Antimony—Market was devoid of buying and prices remained steady.

Aluminum—Light sales were reported by sellers of aluminum. Prices hold.

Hudson Metal Products Co., Chicago, has changed capitalization from $20,000 to 65,000 shares no par value.

Sulphate Prices Lower; Distillates Steady

New York—Sulphate of ammonia and naphthalene prices are easy. Some distributors of the former are not quoting, but taking bids in line with foreign material which ranges $17 to $18 a ton, port. Domestic sulphate of ammonia now is 85.00c to 95.00c per 100 pounds, Atlantic seaboard. Holders of naphthalene, who are long on stock, are moving material under current quotations which are officially unchanged. The distillate group is steady, largely due to limited supplies.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

	Spot
Pure benzol	$0.20
90 per cent benzol	0.20
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26

Per Pound at Producers' Plants in 250-Pound Drums

Phenol	0.153 to 0.173
Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75

Per 100 Pounds Atlantic Seaboard

Sulphate of ammonia	$0.85 to $0.90

Quicksilver Is Easier

New York—Quicksilver prices again are easy, small lots quoted $56, a virgin flask of 76 pounds, for prompt delivery. Round lots have been quoted at a range of $54.50 up to the small-lot level. The market is dull.

Nonferrous Metal Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
July 9	5.37½	5.87½	5.12½	21.15	21.50	2.75	2.60	2.60	22.90	5.00	35.00
July 11	5.25	5.87½	5.00	20.65	21.00	2.70	2.55	2.60	22.90	5.00	35.00
July 12	5.25	5.87½	5.00	21.12½	21.45	2.70	2.55	2.60	22.90	5.00	35.00
July 13	5.25	5.87½	5.00	21.00	21.35	2.70	2.55	2.55	22.90	5.00	35.00
July 14	5.25	5.87½	5.00	21.20	21.55	2.70	2.55	2.50	22.90	5.00	35.00
July 15	5.25	5.87½	5.00	21.10	20.45	2.70	2.55	2.50	22.90	5.00	35.00

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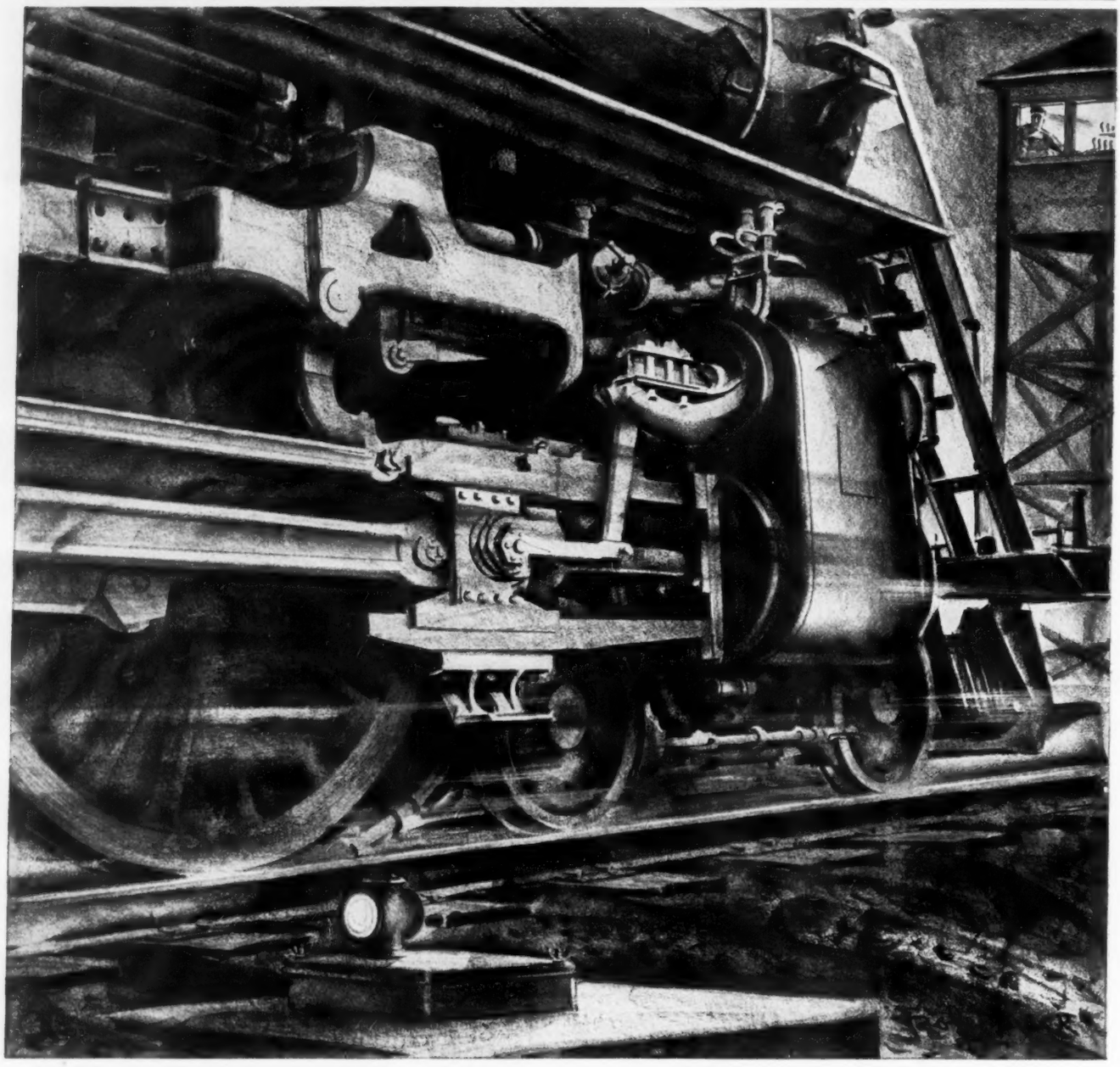
Jos. T. Ryerson & Son, Chicago



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Pacific Coast

Hoover Dam Tunnel Outlets Go to Babcock & Wilcox Co.—Few New Projects Coming Out—Lots Are Small, Mostly for Public Construction—Prices Undergo No Change but Lack Test

San Francisco—(*By Air Mail*)—Sales and inquiries for steel products on the Pacific Coast have shown little improvement and federal, state and county work continues to furnish most business. Prices are unchanged.

Most concrete bar awards involve lots of less than 100 tons. Unnamed interest took 114 tons for highway work in San Diego county, California. Bids have been opened on 290 tons for five buildings for the dirigible base at Sunnyvale, California. An award is expected to be made within the next few days on 595 tons for two bridges in Ventura county, California. Out-of-stock quotations in the San Francisco district continue firm at 2.50c, base, on carloads, while Los Angeles prices hold at 2.10c. Mild steel bars are moving in small lots only at 2.10c, c.i.f.

Contract for tunnel outlets for Hoover dam, about 60,000 tons of plates, has been awarded to Babcock & Wilcox Co., New York, but plates have not been placed with a mill.

Pittsburgh-Des Moines Steel Co. is low bidder on 300 tons for two 500,000-gallon tanks for a water system in Santa Clara, Calif. No change in prices is noted, 2.10c, c.i.f., being held firmly.

Awards of structural shapes included 120 tons for a postoffice at El Centro, Calif., taken by the Minneapolis-Moline Power Implement Co., and 115 tons for an addition to the Los Angeles plant of the Columbia Steel Co., booked by the Pacific Iron & Steel Co. Bids will be opened Aug. 1 for 1200 tons for a medical school at San Francisco for the University of California. Other new inquiries include 290 tons for a market in Long Beach, 200 tons for a postoffice at Reno, Nev., and 150 tons for a postoffice at Glendale, Calif. Standard shapes hold at 2.10c, c.i.f., with wide flange material quoted at 2.20c.

Bridge Work Most Active

Seattle—Pacific Northwest iron and steel awards approximated 1500 tons this week. The largest, 625 tons of structurals for the Green river, King county, Washington, bridge went to the Isaacson Iron Works, Seattle. This will be one of the highest spans in the state with a clearance of 150 feet. The same plant also has the award for a small tonnage of shapes for the Forks, Wash., high school.

Unnamed eastern interests will furnish 150 tons of concrete bars for two girder state bridges over the Method river, Washington. Sheffield Steel Corp., Kansas City, has the contract for an unstated tonnage of reinforcing bars, reported at about 450 tons, for the Cle Elum dam, Ellensburg, Wash., reclamation project. Bids were asked for a total of 740 tons.

Steel in Europe

British Production Gains and Steel Imports Are Less

London—(*By Radio*)—Seasonal quiet is adding its effect to general dullness of the steel and iron markets. Some encouraging factors occur from time to time, a tonnage of plates has been shipped to Russia and Germany has ordered rolling equipment from British makers. Continental semifinished steel continues to undersell British material, one large contract being placed recently in Great Britain.

Pig iron production in June was 311,400 tons, compared with 315,300 tons in May, from 69 stacks each month. Due to the shorter month the daily rate in June was 10,368 tons, compared with 10,170 tons in May. Steel production rose sharply to 459,300 tons in June, from 416,900 in May. Iron and steel imports declined to 126,679 tons in June from 144,013 tons in May. Exports in June were 147,260 tons, in May 151,325 tons.

From Brussels comes the expectation that strikes in the coal mining district will reduce production and harden prices. Belgian steelmakers seem prepared to agree to a reorganization of the European steel entente. Continental export business in steel is declining and domestic markets are quiet with demand at the lowest in many years.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, July 14

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports	£ s d	Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	£ s d
PIG IRON				
Foundry, 2.50-3.00 Silicon	$10.38	2 18 6	$ 8.75 to $ 9.23	1 16 0 to 1 18 0
Basic bessemer	9.94	2 16 0*	6.80 to 7.29	1 8 0 to 1 10 0
Hematite, Phos. .03-.05	11.09	3 2 6	.....	.....
SEMIFINISHED STEEL				
Billets	$17.31	4 17 6	$9.23	1 18 0
Wire rods, No. 5 gage	26.63	7 10 0	21.87	4 10 0
FINISHED STEEL				
Standard rails	$27.51	7 15 0	$26.73	5 10 0
Merchant bars	.99c	6 5 0	.46c to .48c	2 2 0 to 2 4 0
Structural shapes	1.17c	7 7 6	.44c to .45c	2 0 0 to 2 1 0
Plates, †¼ in. or 5 mm.	1.38c	8 15 0	.57c to .58c	2 12 0 to 2 13 0
Sheets, black, 24 gage or 0.5 mm.	1.26c	8 0 0	1.11c to 1.20c	5 1 0 to 5 6 0
Sheets, gal., 24 gage, corr.	1.52c	9 12 6	1.49c	6 15 0
Bands and strips	1.22c	7 15 0	.72c to .74c	3 5 0 to 3 7 6
Plain wire, base	1.50c	9 10 0	1.18c	5 7 6
Galvanized wire, base	1.82c	11 10 0	1.38c to 1.40c	6 5 6 to 6 7 6
Wire nails, base	1.74c	11 0 0	1.21c	5 10 0
Tin plate, box 108 lbs.	$ 2.66	0 15 0	$3.20	0 13 2

British ferromanganese $68 delivered Atlantic seaboard, duty paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

	£ s d		French Francs		Belgian Francs		Reich Marks
Fdy. pig iron, Si. 2.5	$10.38	2 18 6	$ 8.23	210(2)	$ 8.76	315	$16.37	69
Basic bessemer pig iron	9.94	2 16 0*	7.06	180(1)	7.23	260	17.91	75.50
Furnace coke	2.31	0 13 0	4.86	124	3.75	135	4.55	19.20
Billets	17.75	5 0 0	14.50	370	9.87	355	22.89	96.50
Standard rails	1.32c	8 7 6	1.25c	697	1.57c	1,210	1.37c	127
Merchant bars	1.05c	6 12 6	.95c	530	.52c	400	1.19c	110
Structural shapes	1.38c	8 15 0	.99c	550	.52c	400	1.16c	107.50
Plates, †¼-in. or 5 mm.	1.38c	8 15 0	1.17c	650	.68c	525	1.37c	127
Sheets, black	1.30c	8 5 0§	1.44c	800‡	.88c	675‡	1.56c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	1.54c	9 15 0	2.83c	1,570	1.78c	1,370	4.00c	370
Plain wire	1.50c	9 10 0	2.03c	1,130	1.95c	1,500	1.92c	178
Bands and strips	1.50c	9 10 0	1.04c	580	.88c	675	1.37c	127

*Basic. †British ship-plates, Continental, bridge plates. §24 ga. ‡1 to 3 mm. basis price.
British quotations are for basic open-hearth steel Continental usually for basic-bessemer steel

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 Ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal.
½	58	44½	½	25	7
¾	62	50½	¾	30	13
1—3	64	52½	1—1¼	33	17
			1½—2	37	20

LAP WELD

2	57	45½	2	25	11
2½—6	61	49½	2½—3½	30	15
7—8	58	45½	4—6	32	19
9—10	56	43½	7—8	31	18
11—12	55	42½	9—12	28	13

BUTT WELD

Extra strong, plain ends

½	55	44½	¼ & ⅜	+11	+46
¾	60	49½	½	25	9
1—1½	62	51½	¾	30	14
2—3	63	52½	1—2	36	20

LAP WELD

Extra strong, plain ends

2	55	44½	2	31	15
2½—4	59	48½	2½—4	36	22
4½—6	58	47½	4½—6	35	21
7—8	54	41½	7—8	33	19
9—10	47	34½	9—12	23	10
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. Direct mill shipments, base, 5 and 2½. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½ 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. ....$32.00 to 33.00
Four-inch, Birmingham .... 36.00 to 37.00
Four-inch, Chicago ..... 38.40 to 42.40
Six to 24-inch, Chicago..... 34.40 to 38.40
Six-inch and over, N. Y..... 26.00 to 28.00
Four-inch, New York ..... 32.50 to 34.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore	2.75c
Boston	3.25c
Buffalo	2.95c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	2.65c
Los. Ang.	3.30c
New York‡(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.60c
Portland	3.00c
San Fran.	3.25c
Seattle	3.00c
St. Louis	3.00c
St. Paul	2.85c
Tulsa	3.25c

IRON BARS

Baltimore	2.75c
Boston	3.25c
Buffalo	3.15c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia	2.45c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore	2.35c-3.00c
Boston	3.10c-3.25c
Buffalo	2.95c
Chattanooga	3.00c
Cincinnati	3.00c
Cleveland	2.10-2.25c
Detroit	2.85c
Houston	3.00c
Los. Ang. cl.	2.10c
Los Ang., lcl	2.40c
New York	2.65c-3.10c
Phila.	2.26½c
Pittsburgh	2.60c
San Fran. cl.	2.50c
San Fran. lcl	2.80c
Seattle	3.00c
St Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore	2.75c
Boston	3.35c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los. Ang.	3.30c
New York(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.85c
Portland	3.00c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

PLATES

Baltimore	2.75c
Boston	3.35c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.30c
New York(d)	3.30c
Philadelphia	2.45c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	3.00c
San Fran.	3.25c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

NO. 10 BLUE

Baltimore	3.25c
Boston	3.50c
Buffalo	3.45c
Chattanooga	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.35c
Los Ang.	3.60c
N. Y.	3.00c
Portland	4.00c
Phila.*† (e)	2.90c
Pitts.**	3.00c
San Fran.	3.50c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.45c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.20c
Buffalo	3.70c
Chattanooga	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.25c
Detroit	3.50c
Los Ang.	4.20c
New York	3.75c-4.00c
Phila.*†(e)	3.40c
Pitts.**	3.40c
Portland	4.50c
San Fran.	4.05c
Seattle	4.50c
St. Louis	3.80c
St. Paul	3.695c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	4.75c
Buffalo	4.05c
Chattanooga	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	3.75c
Detroit	4.00c
Houston	4.25c
Los. Ang.	4.50c
New York	4.00c-4.10c
Phila.*†(e)	3.75c
Pitts.**	3.90c
Portland	5.00c
San. Fran.	4.55c
Seattle	5.00c
St. Louis	4.35c
St. Paul	4.19c
Tulsa	5.10c

***BANDS**

Baltimore	3.25c
Boston	3.75c
Buffalo	3.30c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	3.65c
Los Ang.	3.80c
New York(d)	3.30c
Philadelphia	2.75c
Pittsburgh	2.95c
Portland	3.50c
San Fran.	3.65c
Seattle	3.50c
St. Paul	3.20c
Tulsa	3.45c

***HOOPS**

Baltimore	3.25c
Boston	3.75c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.00c
Det. No. 14 & lighter	3.30c
New York	3.30c
Philadelphia	3.00c
Pittsburgh	3.60c
Seattle	5.00c
St Paul	3.75c

*New extras apply.

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.60c
Buffalo	2.95c
Chattanooga*	3.65c
Chicago	3.00c
Cincinnati	3.32c
Cleveland	2.95c
Detroit	3.15c
Los Ang. (a)	4.25c
New York	3.39c
Philadelphia*	3.35c
Pittsburgh	2.95c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)	4.50c
St. Paul (a)	3.20c
St. Louis	3.54c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. (a) Rounds, hex, only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	3.95c
Chicago (soft) (b)	5.65c
Cincinnati	5.80c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(b) Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif.
‡Domestic bars.
*Plus quan. extras.
**Less than 25 sheets.
*†50 or more bundles.

Machinery

Government Inquiry Fairly Brisk—Other Lines Dormant

New York—Activity in machinery and equipment is limited almost entirely to government inquiry which is fairly brisk. Bids go in this week on three radial drills for Brooklyn; Aug. 2, three No. 2 universal milling machines for the navy; July 26, precision lathe for Sewells Point, Va., turret lathe for Philadelphia, drilling machines for Newport, R. I., and electric nitriding and carburizing furnace for Brooklyn; and Aug. 2, several sheet metal forming machines for the East and West coast navy shops.

Worcester, Mass.—New England machinery builders, with few exceptions, are operating on curtailed schedules and small fill-in orders with little in the way of backlogs. Inquiry is light and, unless the unexpected develops, present schedules are likely to continue through the summer. This is sharply reflected in foundry casting operations as noted in the last monthly reports of foundry output. The more active shops have goverment orders while several, busy until fairly recently on some automotive equipment, have finished and shipped this business.

Pittsburgh—The steel mill equipment market continues to be in its dormant state with the only feature being the large carryover of inquiry. However, many of these projects have been carried along now for over two years and there is little immediate prospect of appropriation for some of this work. Demand for rolls is somewhat less although one interest closed on some plate and sheet mill rolls last week. A new machine to unroll hot-rolled strip coils for cold mill passes is to be announced shortly by a leading equipment maker.

Cleveland—Characterized by one dealer as the flattest week of a flat year, the past seven days appear to have been particularly uneventful in the machinery and equipment markets. A fair volume of inquiry is out, but closing is dependent upon overcoming the attitude of watchful waiting on the part of large manufacturers.

Chicago—Seasonal factors as well as the general business situation are restricting interest in purchases of machine tools and plant equipment. Complete and partial shut-downs at some manufacturing plants serve to postpone action on what small purchases had been anticipated and most users apparently are awaiting an improvement in business before considering installation of new equipment. No inquiries of consequence are appearing for machine tools and what business is pending gives but little prospect of being placed in the near future. Sales are light and lack improvement since a month ago.

Construction and Enterprise

New England

WESTERLY, R. I.—Maxson Automatic Machinery Co. has been incorporated with $25,000 preferred stock and 1000 shares no par value to design and manufacture machinery.

New York

BROOKLYN—U. S. Tool & Steel Corp., Wortman and Essex streets, suffered a loss by fire to its plant and equipment, estimated at $250,000.

NEW YORK—All Rotary Oil Burner Corp. has been incorporated with $20,000 capital to manufacture oil burning equipment, by B. J. Katz, 11 Park place.

NEW YORK—Master Tool Corp. has been incorporated with $10,000 capital to manufacture metal specialties, by S. B. Felsenfeld, 290 Broadway.

NEW YORK—Power Equipment Co. has been incorporated to manufacture electrical materials and devices, with $20,000 capital, by G. A. Butler, 70 Fifth avenue.

NEW YORK—Utah Pressing Machinery Corp. has been incorporated with 20 shares no par value to manufacture ironing appliances, by D. A. Shirk, 170 Broadway.

New Jersey

NEWARK—Newark Metal Co. has been incorporated with 500 shares common stock, by Edward R. McGlynn, 17 Academy street, Newark.

PATERSON—Herrmann Metal Ceiling Co. has been incorporated with $25,000 capital to manufacture pressed metal products, by Abram I. Bluestein, 126 Market street, Paterson.

Ohio

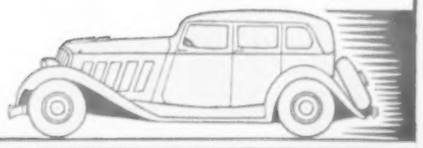
CINCINNATI—Cincinnati Union Ter-

STAMPINGS

These wheels are made from two formed cups electric welded together for use in connection with the new type low pressure tires.

Our plant is equipped to produce stampings of all descriptions. Consult us on your stamping problems.

FALLS STAMPING CO.
Cuyahoga Falls, Ohio



Accuracy-Economy

minal Co. has applied for a permit to erect a central heating plant of brick, steel and concrete at Valley and Queen City avenues, to cost $150,000.

CLEVELAND—National Screw Mfg. Co., 2440 East Seventy-fifth street, is building a 1-story addition to its plant, 20 x 40 feet. Albert M. Higley, Plymouth building, 2036 East Twenty-second street, is general contractor.

MANSFIELD—New Method Stove Co. has been incorporated with 250 shares no par value to manufacture heating devices, by James H. Hoffman, and Charles W. Chew.

MARTINS FERRY—Plant of the Wheeling Structural Steel Co. is being moved here from Wheeling, W. Va., buildings and equipment, to land owned by the company. Offices will remain in Wheeling for the present.

NEW LEXINGTON—State highway department has taken over part of the plant of the Star Mfg. Co., in receivership, and is equipping it with tools and machinery for a state highway garage.

PIQUA—City manager, L. G. Whitney, will take bids about August 1 on buildings for municipal light and power plant to cost about $40,000. Bids on switchboards, pumps, coal and ash handling equipment and crane will close July 20. Burns & McDonnell Engineering Co., Kansas City, Mo., is engineer.

Michigan

DETROIT—Hydraulic Coupling Corp. has been incorporated with $25,000 capital to manufacture hydraulic couplings and machinery, by American Blower Corp., 6000 Russell street.

Illinois

AURORA—Bentson Mfg. Co., 652 North Highland avenue, has been incorporated with 200 shares no par value to manufacture metal cabinets, by John Bentson, same address.

Southern States

MONTGOMERY, ALA.—Capital City Machine Co., 600 North Court street, and C. L. Beale Welding Co., suffered loss in fire doing $40,000 damage.

WASHINGTON—Bureau of supplies and accounts, navy department, will receive bids until July 19 for a locomotive crane for delivery to Mountain View, Calif., on schedule 8335; one universal motor-driven turret lathe for delivery to Philadelphia, schedule 8354.

WASHINGTON—Bureau of supplies and accounts, navy department, will receive bids until July 26 on the following: One motor-driven quick change gear, screw-cutting precision lathe for delivery to Sewall's Point, Va., schedule 8385; one universal motor-driven turret lathe, delivery Philadelphia, schedule 8387; two motor-driven drilling machines, delivery Newport, R. I., schedule 8388; one electric carburizing and nitriding electric furnace, delivery Brooklyn, N. Y., schedule 8389.

HOMER, LA.—F. C. McClanahan suffered loss by fire to his machine shop.

NEW ORLEANS—O. M. Gwin Construction Co., 3503 Fern street, has taken a contract for a second addition to the plant of the New Orleans Compress Co., 280 x 533 feet. Compressing and elevating machinery will be installed. J. F. Coleman Engineering Co., 1418 Hibernia Bank building, is engineer.

Missouri

KAHOKA—Murray O'Blennes, Jefferson street, has started construction of a machine shop 40 x 70 feet, with office 12 x 20 feet. Charles M. Seyb is contractor.

Texas

DALLAS—Lamar Street Foundry & Pattern Works has been established at 900 South Austin street.

DALLAS—Dallas Flywheel Shop has been established at 1704 North Harwood street, to operate an automotive service shop.

Wisconsin

EAU CLAIRE—Pearse, Greely & Hanson, consulting engineers, 6 North Michigan avenue, Chicago, are preparing plans and estimates for an extensive enlargement of the city waterworks supply.

MILWAUKEE—American Welding & Cutting Co. is enlarging its welding shop facilities at 1635 North Thirty-first street.

WEYAUWEGA — Auler, Jensen & Brown, architects, 46 Washington boulevard, Oshkosh, Wis., are making plans for a grain elevator unit to cost $30,000, for the Weyauwega Milling Co.

Iowa

SUMNER—Bids will be taken in July for an electric light and power plant to cost $95,000. Redick Tower, Omaha, Nebr., is drawing plans.

WATERLOO—Construction Machinery Co. has been incorporated with $100,000 capital to manufacture machinery, by P. L. Bryant.

Pacific Coast

STAYTON, OREG.—Mountain States Power Co. has started construction of a new plant for which equipment will be required. Total cost will be about $45,000.

Dominion of Canada

NELSON, B. C.—Green & Co. has been awarded a contract to construct a power plant on Sheep creek for Reno Gold Mines Ltd. A single turbine and horizontal-type generator will develop 700 horsepower. Transmission lines will be 6½ miles long.

CARLETON PLACE, ONT.—Findlays Ltd. has been incorporated with $640,000 capital to manufacture stoves, ranges and furnaces, by David Findlay, Carleton Place.

New Trade Publications

FLOOR PLATE—A folder has been issued by Inland Steel Co., Chicago, on its new type of floor plate. This design matches four ways, as each projection centers the next at right angles, drains readily and sweeps clean in four directions. These plates are equally stiff lengthwise and crosswise.

LUBRICATION—The June, 1932, issue of the Texas Co. magazine on lubrication is devoted to high temperature bearing service lubrication requirements and worm reduction gear lubrication. Illustrations show approved methods.

REFRACTORIES — Cupola blocks form the subject of a leaflet by the Ironton Fire Brick Co., Ironton, O. Method of manufacture, chemical and physical properties are described.

Exports of Metalworking Machinery

	May		Five Months Ending May	
	1932	1931	1932	1931
Engine lathes	10	37	60	234
Turret lathes	1	62	23	149
Other lathes	15	74	74	325
Vertical boring mills and chucking machines	3	27	23	122
Thread-cutting and automatic screw machines	4	13	46	91
Knee and column type milling machines	7	13	28	73
Other milling machines	11	36	61	144
Gear-cutting machines	8	86	40	177
Vertical drilling machines	1	46	30	170
Radial drilling machines	1	13	2	67
Other drilling machines	63	89	208	822
Planers and shapers	13	17	59	135
Surface grinding machines	4	10	39	60
External cylindrical grinding machines	18	27	62	118
Internal grinding machines	3	26	33	133
Tool grinding, cutter grinding, and universal grinding machines	23	62	154	396
Pneumatic portable tools	516	894	2378	4848
Chucks for machine tools	266	828	2172	4192